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THE RAILWAY OFFICIAL GAZETTE

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Railway Wages and Economies

THE offer made last week by the British Transport Commission, of a rise in railway wages which would increase them by 6 per cent over the level obtaining before the 4s. a week flat increase awarded by the Railway Staff National Tribunal in December, gives increases ranging from 7s. 1d. a week for the lowest paid adult male railwayman to 10s. 1d. for a top grade driver, including the flat 4s. As the National Union of Railwaymen had stipulated a minimum rise of 7s. a week, including the 4s., there is disappointment among the unions, two of which, the N.U.R. and the Associated Society of Locomotive Engineers & Firemen, have asked for further talks without, apparently, wishing at this stage to go into the matter of the *quid pro quo*—the increased efficiency in railway operation and consequent economies which are to be discussed between the Commission and the unions and which may well involve some concessions by railwaymen in the form of alterations in working conditions. The N.U.R. and the A.S.L.E.F. also are understood to be dissatisfied with the size of the differentials which the flat 6 per cent increase gives to their higher-paid members. The matter of differentials, however, is one to be considered with the whole question of the pay structure of British Railway employees,

which is to be examined in conjunction with that of increased efficiency. The latest wage offer is understood to cost the Commission some £12,500,000 in a full year. To help to meet the additional annual £6,000,000-£7,000,000 a year incurred by the 4s. a week rise, besides increases caused by rises in other working expenses, such as coal, which may bring the total to be found this year to £47,000,000, the Commission at the beginning of this month applied for permission to raise railway rates by 10 per cent, and even with that increase would be getting dangerously near pricing itself out of the market. The process, already repeated on several occasions in the past few years, of passing on wage increases to the railway user, cannot be repeated, and the talks to be begun this week must result in vigorous and constructive steps to achieve economies.

Breaking the Spiral

THE 10 per cent increase in railway rates, on which the decision of the Minister of Transport was awaited as we went to press, will be, if it occurs, simply a continuation of one of the spirals of interacting costs and prices in the nationalised industries. To take the latest instance, the British Transport Commission has stated that the increase in the price of coal early last year has been an important item in the rising costs of running the railways which has necessitated the request for authority to increase railway rates including those for coal; and an increase in the price of transport of coal from the pitheads cannot fail ultimately to cause one in the price of coal. Both undertakings in accordance with their statutory duty are understood to charge each other "commercial" prices. Wage increases are important direct causes of increased rail transport and coal prices; dearer transport must affect the miners' cost of living, just as dearer coal affects that of railwaymen. Whilst breaking the spiral depends largely on the volition of miners and railwaymen in the exercise of self-restraint in wage demands, there is much to be said for agreement between the Commission and the National Coal Board not to raise the price of the transport and coal provided to one another; this at least should afford an element of stability in prices.

Export of Railway Materials

THE Board of Trade announces that exports of locomotives and parts and of railway rolling stock, which rose substantially between 1951 and 1952, showed a further increase in 1953, notably with increased consignments of rolling stock to Australia, Southern Rhodesia, and British-administered territories in East Africa. Under the heading of "Railway rolling stock," which is understood to include light railways and tramways, the value of locomotives and parts exported last year is shown as £20.1 million, much exceeding the 1952 figure of £17.9 million, though the long-term nature of locomotive orders, and shipment dates complicate any comparison between annual totals. The value of "other railway rolling stock" exported in 1953 is given as £22.4 million, against £18.9 million for the previous year. There are stated to have been larger shipments of railway construction materials to South Africa, Southern Rhodesia, and British East Africa, reflecting the new construction and track improvements there. As with previous export figures published by the Board of Trade, the classification of commodities and markets detracts much from the value of the statistics.

Optimism in Tasmania

WHEN the Commonwealth Grants Commission met in Hobart recently to review the Tasmanian Government claim for a special Commonwealth grant, its chairman said that the evidence of Mr. C. E. Baird, Commissioner for Transport, Tasmania, and Mr. C. G. C. Wayne, General Manager of Railways, showed a positive approach to the problem of improving financial results in the State. Mr. Baird said that the General Manager's efforts to obtain more business by appointing commercial officers and traffic canvassers were meeting with good

results. If basic wage increases could be arrested and margin increases were not excessive, a definite improvement in railway finances could be expected. The railways now have the equipment to handle more traffic and are making every effort to obtain it. In the first five months of the current financial year, the loss on working has been reduced by £35,000; earnings rose by £29,728, and expenses dropped by £5,420. In his report last year on the Tasmanian Government Railways, discussed editorially in our November 20, 1953, issue, Mr. H. H. Phillips, Chief Commercial Officer, British Transport Commission, advocated drastic cuts in passenger services. The Tasmanian Transport Commission put forward alternative proposals for withdrawing passenger services from certain country and branch lines, which are being investigated by a Select Committee.

Development in Portuguese Overseas Territories

LARGE sums are proposed to be spent this year on development projects in the Portuguese overseas territories of Angola, Mozambique, and Portuguese India. The sum of 190,000,000 escudos (£1 = 80 esc.) is to be spent on improvements to and extensions of the railway system of Angola, including an extension of the Luanda Railway to Lui and one of the Moçamedes Railway to Vila Serpa Pinto; in addition, works are to be carried out and new equipment provided at the ports of Luanda, Lobito, and Moçamedes. In Mozambique the largest sum, esc. 250,000,000, is to be spent on the construction and equipment of the Limpopo Railway from Guija to the Mozambique-Rhodesia frontier, which will form part of the direct route being made between Bulawayo and Lourenço Marques. The amount of esc. 20,000,000 will be allotted to projects at Mormugao, in Portuguese India. Mormugao, the only modern rail-served port on the west coast between Bombay and Cochin, is served by a metre-gauge line owned by the West of India Portuguese Guaranteed Railway and worked by the Southern Railway of India, for whose metre-gauge system it forms a west coast outlet.

European Railway Transport in 1952

THE indices of freight traffic by railway and inland waterways and of production and imports reproduced in the *Annual Bulletin of Transport Statistics* for 1952 published by the United Nations Economic Commission for Europe show that for all the countries for which figures are given, except Holland, the combined traffic index was below that of production and import. The *Bulletin* ascribes this partly to the growth of road transport. It also suggests that the volume of public transport needed for a given level of production may be diminishing. In 1952, railway goods traffic generally was slightly lower than in 1951, the exceptions being in Western Germany, presumably because of the post-war industrial development there, and in Portugal, Spain, and South Eastern Europe. The increase in railway passenger traffic continued in 1952, except in Finland, Greece, Ireland, Yugoslavia, Sweden, and the United Kingdom, but only in Yugoslavia was the decrease substantial. As far as can be learned from available figures, there was a general increase in road travel. The statistics of international tourist movement and international bus and motorcoach travel, included for the first time, show that international travel was higher in all the countries concerned, except France and Ireland.

Area Holiday Guides

PHOTOGRAPHIC illustrations better even than in previous issues are a feature of the 1954 edition of the five British Railways area holiday guides, each of which provides the usual good value for one shilling. An innovation this year is the variation on each of the attractive coloured covers on a common beach holiday theme. On the cover of the guide for Area No. 1, which is Scotland, the beach depicted suggests a Firth of Clyde or other Highland coast resort, whilst the Area No. 4 cover has a West Country seaside background. Under the present organisation of

British Railways in Regions, the arrangement of the guide areas roughly co-terminous with the Regions is the best possible, and the inset maps on the covers show the area covered in each case. Over 6,000 holiday addresses, descriptions of 1,000 holiday places, travel information and maps are provided, the holiday accommodation listed ranging from cottages and farms to luxury hotels. Principal expresses of the Regions concerned are shown in some of the photographs.

Bridge Deck Slab Tests

THE American Railway Engineering Association recently arranged for a series of tests to destruction to be made upon a number of pre-stressed and reinforced concrete bridge deck slabs designed for Cooper's E.72 loading. A pre-stressed slab 6 ft. 6 in. wide, 19 ft. long and 1 ft. 6 in. thick, with concrete developing a strength of 8,700 lb. per sq. in. after 28 days, withstood a load of 576,000 lb. before fracture, or over three times is designed load of 180,000 lb. Its pre-stressing system consisted of 21 evenly-spaced seven-wire strands, each $\frac{1}{2}$ in. dia., at mid-depth, and 20 similar strands near the bottom of the slab; all were anchored to the slab by bond alone. The cables were tensioned to 144,000 lb. per sq. in. before the placing of the concrete. One day after casting, the slab was steam-cured for 24 hr., and after seven days the cables were released from their temporary anchorages. Tested after 28 days, the slab deflected 2.57 in. at the point of fracture. None of the pre-stressing strands broke; they had an ultimate strength of 240,000 lb. per sq. in. One 18-ft. R.C. concrete slab tested was taken from the line after 45 years' service. Though cracked and its depth reduced 6 in. by weathering, it broke only under a load of 440,000 lb.; its designed loading was 120,000 lb.

A British Survey of 50-Cycle Problems

HITHERTO most of the published material on single-phase electrification at 50 cycles per second has come from the Continent. The detailed survey of this subject of Mr. J. H. Cansdale of the British Thomson-Houston Co. Ltd., in the December, 1953, issue of *Electric Traction on the Railways*, published by the International Railway Congress Association, is a notable British contribution. His exposition of the background of this technique skilfully summarises the technical problems and the ways in which they are being tackled. His conclusions give more weight than usual to the special costs that may be involved in obtaining clearance for the overhead equipment. He shows that with 20 kV. an extra 12 in. total clearance from roof to track structure is required as a minimum, as compared with 1,500 V. or 3,000 V. d.c. He notes that on the French National Railways Valenciennes-Thionville scheme, only two out of eleven tunnels can be used without modification. He does not foresee the extension of existing schemes on the 50-cycle system, but feels that where steam-worked main lines run through open country, the 50-cycle principle might encourage their electrification in places where traffic density has been too low for conversion by previous standards.

The Hundredth Locomotive from Chittaranjan

THE 100th locomotive to be produced at the Chittaranjan Locomotive Works made its first trip on January 6, in the presence of Members of the Indian Railway Board and the General Managers of the railways. Mrs. Basanti Devi, widow of Deshbandhu Chittaranjan Das, the Nationalist leader after whom the works are named, unveiled a nameplate on the engine, inscribed *Chittaranjan 100*. Mr. Lal Bahadur Shastri, Minister for Railways & Transport, said at the ceremony that at present it was aimed to turn out from Chittaranjan 120 locomotives and 50 spare boilers a year, but that this was not enough in view of increasing needs. India, he pointed out, had had to place orders abroad for locomotives, as it was not possible within a short time to replace by home production the many locomotives which wartime wear and tear and Partition had

made it necessary to condemn. They would still have to resort to imports for some time, but they should nevertheless aim to produce a total of 200 locomotives annually from Chittaranjan. Chittaranjan Works, which was established with the technical assistance of the Locomotive Manufacturers' Association, was inaugurated on January 26, 1950, and the first locomotive to be assembled there left the shops on November 1 of that year.

Meeting South African Transport Needs

THE South African Railways were particularly successful last year in increasing their carrying capacity. Between April 1, 1952, and March 31, 1953, they hauled 69,044,073 tons of goods, a record total and an increase of 5.94 per cent of the figure for the preceding year. In a review of progress in 1953, Mr. D. H. C. du Plessis, General Manager, South African Railways, shows that this satisfactory result was achieved with an increased figure of wagons loaded which was substantially below the percentage increase in tonnage carried, and train and engine mileage advanced by only 3.8 per cent—a significant indication of operating efficiency. Traffic figures are still rising; in the first five months of the current financial year (April-August, 1953) the tonnage conveyed was 29,747,557, in comparison with 28,661,750 for the period April-August, 1952.

The sharp fluctuations in freight traffic in the past have all but disappeared and there is now a constant traffic offering; as soon as a seasonal decline occurs in one form of commodity there is usually a spurt in another. The result is intensive use of labour and equipment. The South African Railways have therefore been making strenuous efforts to overcome their shortage of trained staff, and a mission is now in Europe to recruit 2,300 men for training as platelayers, firemen and shunters.

In the last year only 34 new steam locomotives and 21 electric units went into service. As the estimated volume of goods traffic to be moved in this financial year is some 72,000,000 tons, the shortage of locomotives and wagons and inadequacy of yards and track facilities make this seem at first sight a difficult aim to achieve. Locomotive orders long outstanding are now being carried out, however, the number of new wagons being added every month is satisfactory, and substantial wagon orders remain to be fulfilled. It is expected that this year 3,927 wagons will go into service—the wagon total has increased in the last 10 years by 25,255, or 43.2 per cent, and by the end of September, 1953, the railways had a total of 84,886 with a carrying capacity of some 2,500,000 tons.

The improvement of essential facilities is keeping pace with the acquisition of locomotives and rolling stock. Large-scale works on which good progress is being made include the doubling of the Natal main line, and that of the Kroonstad-Bloemfontein and Union-Vereeniging sections, the regrading and improvement of the main line from Port Elizabeth to the Witwatersrand, and the electrification of the Belville-Worcester-Touws River section of the Cape Western Main line. New goods yards at Cape Town and Johannesburg, the Grootvlei-Redan and Orange Free State Goldfields lines and the enlargement of Germiston yard are among the projects completed. The new passenger station at Johannesburg will shortly be ready for full use. The construction section of the Chief Civil Engineer's Department spent £12,316,000 last year and will spend more than £10,000,000 this year.

In an effort to keep down mounting costs the economy and efficiency campaign launched some years ago has been intensified and Mr. du Plessis is able to report good results from it. There is proof of its success in that instead of the expenditure of £69,134,216 estimated for the first six months of the financial year, the amount in fact spent was £65,573,076, in spite of the increased number of passengers and tonnage of goods carried. During the last nine years £280,459,179 has been spent on new works and the replacement of out-of-date equipment;

£200,348,278 of this sum represents interest bearing capital supplied by the Treasury. It is expected that £56,779,364 will be spent during the current financial year from capital, betterment and renewals funds.

Rhodesia Railways

THE volume of work performed by Rhodesia Railways throughout the year ended March 31, 1953, was unprecedented. The total tonnage of goods and minerals carried was some 8 per cent more than in the preceding year. The capital expenditure of £9,989,000 was nearly double the highest annual total previously recorded during the year ended March, 1950. Expenditure on locomotives and rolling stock for the five years ended March, 1953, reached more than £13,000,000.

In his report for the year, Lt.-Colonel H. B. Everard, General Manager, mentions that the results of recruiting for staff in the United Kingdom, the Continent, and the Union of South Africa, were, on the whole, satisfactory. Staff shortage made an increase of overtime working necessary. On July 1 revised rates and fares came into force, but additional costs and changes in the character of the traffics reduced the expected benefits. Towards the end of the year it was evident that low-rated traffic was expanding more than high-rated traffic, and it became apparent that further action would have to be taken to supplement revenue. Every effort was made to reduce expenditure without impairing the efficiency or the carrying capacity of the railways. Loans and capital resources at March 31, 1953, totalled £52,972,081.

Some of the principal results for the year under review and the preceding year are compared below:—

	1951-52	1952-53
Mileage open	2,435	2,497
Gross ton-miles (thousands)	6,249,172	6,769,235
Average haul (miles)*	409	407
Train-miles*	9,541,534	10,401,128
Engine-miles*	11,417,196	12,481,626
Tonnage conveyed:—		
General merchandise	3,486,362	3,758,268
Coal and coke	2,334,775	2,551,195
Minerals	1,475,389	1,585,299
Total	7,296,396	7,894,762
Total passenger journeys	3,099,214	3,361,899
Receipts:—	£	£
General merchandise	7,341,462	9,331,915
Coal and coke	1,198,983	1,389,658
Minerals	2,578,511	2,587,352
Coaching	1,565,635	1,725,977
Road motor	392,344	470,890
Total revenue	13,545,609	16,059,952
Total expenditure	11,963,695	14,573,299

* North of Bulawayo

Centralised traffic control was extended from Shangani to Somabula and an extension from Somabula to Gwelo put in hand. The advent of diesel-electric locomotives caused special problems in the design and maintenance facilities at Salisbury and Umtali, and in fuelling requirements. The six Davenport 500-b.h.p. diesel-electric locomotives were used on the Umtali-Salisbury section. Coaches newly erected, repaired or rebuilt totalled 441, a record output. Theft from and damage to coaches increased seriously. The new running shed and mechanical coaling plant at Bulawayo came into full operation just after the close of the period reviewed, with most beneficial results. The difficulty in recruiting and maintaining workshops staff caused concern as it was becoming necessary to carry out scheduled repairs to the large numbers of locomotives and amount of rolling stock placed in service in recent years.

There was no reduction in the volume of work required for expansion. The south-east connection, forming part of a direct route from Bulawayo to Lourenço Marques, was begun, and progress was made with the development scheme at Bulawayo, the Dett-Wankie deviation, and remodelling schemes.

A continued demand was made on all available resources of staff, engine power and terminal facilities. Inclement weather affected working. The railways kept pace with colliery working but the movement of chrome ore was limited by shortage of engine power suitable for branch lines. Although the Southern Rhodesia maize crop was

the best for some years, Northern Rhodesia had to import some 300,000 bags; this traffic could be moved only at the expense of other traffic north of Wankie.

A joint industrial committee for African railway employees was set up as an interim body. It comprises senior officers of the Railway administration and representatives of the African Workers' Unions of Southern and Northern Rhodesia, with the General Manager as Chairman. There was a strike of about half the African staff in Northern Rhodesia for a week in May, 1952.

Wearing Parts of Electric Rolling Stock

THE London Transport system consists of 248 route miles of track and 4,050 vehicles which operate some 585,000 car miles a day, sufficiently extensive for representative impressions as to wear and tear to be obtained. These and other problems were considered by Mr. A. W. Manser, Chief Mechanical Engineer (Railways), London Transport Executive, in a paper delivered last week before the Institution of Locomotive Engineers, in which he stated his opinion that the curve of maintenance costs rises year by year and does not show signs of becoming asymptotic only after more than ten and probably 15 years have elapsed from the date the vehicles are placed in service.

The wear and tear to which all component parts of the vehicles are subjected may be divided, he maintains, into two categories: that resulting from doing the work for which the rolling stock was provided; and wear resulting from the vibration to which the stock is subjected, particularly insofar as the bogie frame is concerned. Wear due to vibration is the more serious in many cases, particularly with such components as brake levers, which are mounted on the bogie frame, and which have the benefit of less than half the springing of the car as a whole. The wear of tyres is quite different from that found on a normal main-line or interurban system, as it is peculiar to the track layout on London Transport railways, with the many curves, some of them far too small a radius.

Both tyred and solid wheels are used, the latter confined to certain non-motored positions. Enormous variations in tyre and wheel wear have been experienced, ranging from the 36-in. dia. motor tyres of early stock running on the District Line, braked with cast-iron blocks, and which require re-profiling from 30,000 miles and, at the other extreme, 30-in. dia. trailer car tyres on the Piccadilly Line which run more than 800,000 miles without attention, of which the profile subsequently was not then badly out to gauge. Broadly speaking, Mr. Manser states, tyre wear resulted in sharp flanges, deep flanges, thermal checking and flaking, and hollow treads.

Sharp flanges are usual on motored wheels braked with cast-iron blocks on stock running on the District Line with a high proportion of curves. Such wear has resulted from the abrasive effect of cast-iron dust from the brake blocks being fed down between the side of the rail head and the tyre flange, during braking while rounding curves. This type of wear, he explains, is extravagant, as the loss of tyre thickness during re-profiling far exceeds the tread wear resulting from actual running. It has sometimes been contended, he adds, that there is an optimum point of flange wear beyond which the wear progresses out of proportion with mileage, and that it is wrong to allow a tyre to run until rejected by minimum flange measurement; but there does not seem to be any definite evidence to support this opinion.

Deep flanges are usually found on both motored and unmotored wheels running on sections where the proportion of curves is not so high, and on stock working on intensive service with high rates of braking, and non-metallic brake blocks. In such cases re-profiling largely is a matter of "topping" the flange, an operation readily achieved on a ground-level wheel lathe without removing the wheels from the car or uncoupling the train. Thermal checking and flaking is found occasionally on motored wheels with alloy-steel tyres, and braked by non-metallic brake blocks, a feature which seems clearly connected with the high rate of dissipation of energy at the brake blocks,

about 60 h.p. per block, and results in part from the transient high temperature produced under the block.

With plain carbon-steel tyres used under the same conditions, the effect occurs more regularly, but is not so common with the alloy-steel tyre treated to a tensile of 57-65 tons. The roll-over of tyres usually associated with special stretches of the line where sinusoidal movement of wheel sets seems to be enhanced, is most undesirable, Mr. Manser says, as the effect progresses; pieces of the rolled-over edge may break off in lengths sufficient to cause trouble by bridging across rail block-joints and, in extreme cases, between the running rail and the positive current rail.

Hollow treads occur, but rarely to a degree which justifies withdrawal of wheel sets for rectification because, by comparison with most lines, running speeds are not so high. Furthermore, other forms of wear reach a limiting condition before riding has deteriorated to any marked degree.

November Operating Results

THE burst of industrial activity which improved the

October results of British Railways raised output to a new peak in November. The official index of production was put provisionally at 130 against 100 for the base year 1948. The four-week period November 2-29 is usually the busiest of the year for freight traffic, and in 1953 British Railways set up more than one fresh record. Freight train traffic amounted to 23,899,000 tons, an increase of 734,000 tons on 1952, or 3.2 per cent, and the largest tonnage originating in any four-week period since nationalisation. British Railways carried the average ton 1.6 of a mile further than in 1952 and worked 102,069,000 more ton-miles, an increase of 5.7 per cent. The November ton-mileage of 1,901,716,000 established an all-time record for a four-week period, either before or after the war. Coal and coke accounted for 47.7 per cent of these ton-miles and 61.2 per cent of the total November tonnage. It is interesting to see that in 1937, the last good year enjoyed by the former railway companies, coal and coke produced 47.1 per cent of the ton-miles worked and 63.1 per cent of the tonnage conveyed.

While the increase in the November traffic volume is gratifying, comparisons with 1952 should not be stressed as Period 12 of that year fell in many respects below the 1951 level. For instance, merchandise forwardings of 4,035,000 tons in November were 1.8 per cent above 1952, but 6.4 per cent below 1951; the corresponding ton-miles were 2.5 per cent above 1952, but 3.6 per cent below 1951. Again the mineral tonnage of 5,154,000 tons was 2.2 per cent less than in 1952, though 1.2 per cent larger than in 1951, while mineral ton-miles were 2.4 per cent up on 1952 and 0.9 down from 1951; the explanation is that the length of haul varied from 80.5 miles in 1951 to 75.3 in 1952 and 78.6 in 1953.

Similarly, coal class traffic was carried for 59 miles in 1951, 56 miles in 1952 and 58 in 1953, with the result that a rise in tonnage of 5.5 per cent on 1952 led to a 9.4 per cent increase in ton-miles, while a 5.6 per cent rise on the 1951 tonnage went with an advance of only 3.6 per cent on the 1951 ton-mileage. These contrasts prove that the extra work falling upon British Railways in November was not so formidable as the statement of originating tonnages might seem to indicate.

FREIGHT OPERATING STATISTICS

All Regions bore a share of the additional traffic movement in November. Perhaps the heaviest burden fell on the Western Region where 342,000 more tons originated (9 per cent), 38,000 more wagons were loaded (7.7 per cent) and 4,506,000 more wagon miles were worked (5.7 per cent). The corresponding increases for the London Midland Region were 247,000 tons (3.7 per cent), 17,000 loaded wagons (2 per cent) and 3,117,000 wagon miles (2.4 per cent). The Eastern Region originated 63,000 fewer tons (1.6 per cent) and loaded 9,000 fewer wagons (1.8 per cent), but worked 4,210,000 more wagon miles (5.7 per cent) and with an increase of 30,892,000 (8.1 per cent), its

ton-mileage reached the record height of 413,814,000. The Western Region worked 30,692,000 more ton-miles (9.5 per cent), with a total ton-mileage of 353,677,000. The other Regions also recorded substantial advances in ton-miles.

To cope with the expanding traffic, British Railways ran 11,604,000 freight train-miles in November, an increase of 380,000 (3.4 per cent) and the largest total for any four-week period in recent years. Freight engine-hours in traffic were, however, only 31,000 (1 per cent) over 1952 and were no less than 103,000 below 1951, a decrease of 3.3 per cent. The Western Region was responsible for 122,000 extra train-miles (6 per cent) and 34,000 more engine hours (5.6 per cent). The Eastern Region ran 92,000 additional train miles (4.2 per cent), but kept its engines in traffic for only 7,000 more hours (1.3 per cent). A remarkable feature in a busy period was a cut of 6,000 in engine-hours made by the London Midland and the North Eastern Regions. Another satisfactory result was a rise in the all-line freight train speed from 8.38 m.p.h. to 8.53. The Eastern Region, moving a trainload of 181 tons, improved its speed from 8.44 m.p.h. to 8.71; the North Eastern ran its load of 157 tons at 10.72 m.p.h.; and the Scottish Region hauled a light load of 114 tons at 10.23 m.p.h.

A second statistic to confirm the improvement in mobility was "wagon miles per train engine-hour." The all-line average advanced from 219 in November, 1952, to 225. Freedom of movement was high in the North Eastern Region, whose average rose by 19 points to 274, and the Eastern also did well to work 247 wagon miles in a train hour, 9 more than in 1952. A third significant gauge of freight train operation, "net ton-miles per train engine-hour," recovered from the partial setback in October. The all-line average of 1,150 was a record for November and also surpassed the highest figure for October, 1,145 in 1952. The outstanding performance was the North Eastern working of 1,474 ton-miles in a train engine-hour, a rise of 123 on 1952. The Eastern Region, handling a denser traffic with less line capacity, likewise did a good piece of rail-roading in lifting its statistic by 74 points to 1,318.

RAILWAY PASSENGER TRAFFIC

In the month of October, British Railways originated 79,202,000 passenger journeys, 1,539,000 more than in 1952 (2 per cent), but 3,399,000 fewer than in 1951 (4.1 per cent). The only Region to show a decrease was the Eastern, which lost 258,000 passengers (2.0 per cent). First class journeys numbered 1,964,000, a decrease of 114,000 (5.5 per cent). The London Midland lost 75,000 first class travellers (9.5 per cent) and the Scottish Region 58,000 (18.4 per cent), while the Southern gained 30,000 (6.6 per cent). The October receipts increased by £13,000 (1.2 per cent) because the average first class fare was about 8d. higher than a year ago.

In the four-week period No. 12, London Transport railways carried 44,921,000 passengers, a decrease of 1,286,000 (2.8 per cent). Railway car miles were reduced by 83,000 (0.5 per cent).

ROAD TRANSPORT

In the November period British Road Services carried 3,209,000 tons, 43,000 more than in 1952 (1.3 per cent). That was the first traffic increase in 1953 and involved the running of 193,000 more vehicle miles (0.3 per cent).

The British Transport Commission provincial and Scottish road passenger transport undertakings carried 179,381,000 passengers, an increase of 4,268,000 (2.4 per cent) and ran 39,837,000 car miles, an increase of 437,000 (1.1 per cent). London Transport conveyed fewer passengers by road for the fourth time since the period ending August 9. Its journeys numbered 280,152,000, a decrease of 1,468,000 from 1952 (0.5 per cent) and of 19,306,000 from 1951 (6.4 per cent).

INLAND WATERWAYS AND DOCKS

The end-of-the-year spurt in the coal mining industry was the chief cause of an increase of 85,000 tons (8.7 per cent) in traffic originating on Inland Waterways and also of the working of 961,000 more ton-miles (5.9 per cent). Coal shipments at docks and wharves totalled 2,671,000

tons, 321,000 tons above 1952 (13 per cent). An increase of 34,000 tons (nearly 6 per cent) in the exports of oil and motor spirit helped to raise outgoing dock traffic to 3,600,000 tons, the highest figure for the past three years.

Moving Labrador Iron Ore

THE construction of the Quebec North Shore & Labrador Railway, which is to carry the iron ore from the Labrador deposits to the shores of the St. Lawrence for shipment, is making good progress, as is shown in the article elsewhere in this issue. The deposit has been known officially to the Canadian Government since 1894, and its exploration has been almost continuous since then. The Iron Ore Company of Canada, embodying five steel companies, was formed as soon as its commercial development was assured, and has the right to lease much of the ore-field area. In 1950 the presence of 400,000,000 tons of ore was proved, but the ore bodies are not continuous and the ore varies in type and quality not only between deposits but also from place to place in a deposit. It is mostly hæmatite with some magnetite present occasionally.

The favourable area for development is 225 miles long and from 10 to 60 miles wide; the productive zone as already proved is 90 miles long. An unusual and important feature is that, with one exception, all the deposits so far proved have been discovered from surface outcrops within a three-mile radius of Knob Lake, the railhead. The possibilities of further discoveries are shown by that exception as follows. At Knob Lake camp a drill was being tested by driving a bore only a few feet deep. In this bore rich ore was accidentally struck and found to go down to a depth of no less than 367 ft., still in high-grade ore. This has proved to be a 10,000,000-ton deposit of 63 per cent iron ore. Bulldozers scraping roads have frequently turned over high-grade ore 1 ft. or 2 ft. below the surface, but there has not yet been time to follow up these discoveries.

Open-pit working, with explosives when necessary, is provided for, the ore being loaded by 6-yd. electric shovels into 30-ton diesel trucks for carriage to a crushing and screening plant, to limit the size to 6 in. and under. The ore then goes by conveyor-belt into a loading pocket for dumping into railway wagons. The working season will be limited to five and a half or six months in each year, not by weather conditions at the mine, but because the ore would be liable to freeze in the wagons and make unloading very difficult.

The ore is supplied to blast furnace smelting concerns according to definite specification, and they have the right to test samples once it is shipped at Seven Islands, the St. Lawrence terminus; any failure to meet specification involves a price penalty against the ore company. Every effort is made to supply the grade of ore specified, and the following measures will be taken accordingly. After the ore is loaded into wagons at Knob Lake, samples will be taken from each wagon, and these will be analysed while the train is on the way to Seven Islands.

The results of this sampling will be transmitted by teletype to that port, so that the ore grader there will know the grade of the ore in each wagon of the train before it arrives there. This will enable him to direct the wagons into the classification yard and then into the dumper in the proper sequence to produce a uniform grade to meet specification. This mixing of the ore is complicated, and frequently entails mixing wagons of ore from different deposits to obtain the required grade.

If direct loading into a vessel is not possible, the load is diverted to a stockpile so as to release the wagons at once. The stockpile enables shipping to continue over a longer period than the mining season, as the port of Seven Islands is open for nine or ten months, and could be kept open throughout the year, if necessary. As temperatures at the port are more moderate than at Knob Lake, no serious freezing of the stockpile is expected. The target for handling at Seven Islands in 1956 is 10,000,000 long tons of ore in 165 days, or 60,000 long tons or 700 to 750 wagons daily.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

Loudspeaker Announcements

January 21

SIR,—May I protest at the increasing use of station loudspeakers to chide passengers? At Kings Cross, for example, after some useful information, we were informed that smoking in non-smoking compartments was prohibited, while, at Finsbury Park, passengers for the 6.5 p.m. to Welwyn Garden City were "advised" that the first class accommodation was for first class ticket holders only.

This type of announcement is the very worst sales technique. Is it good public relations to infer that your customers have suffered a complete collapse of moral standards or are contemplating mass civil disobedience? Such announcements engender fury and the customer feels even more certain that he can never be right. Such measures may be all right against terrorists in the jungle, but not in civilised Finsbury Park.

If the railways are to persist in regarding their passengers as criminal lunatics, why not give them the full treatment? In between trains, the ladies of the microphone could read excerpts from the bye-laws, particularly those where dire penalties are involved.

Yours faithfully,

GEO. T. THOMLINSON

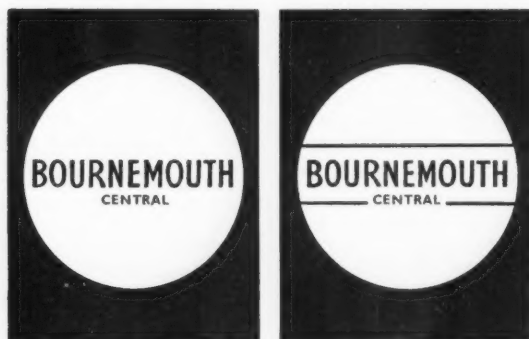
Attimore Hall Gatehouse, Welwyn Garden City

Station Name Signs

January 11

SIR,—Referring to the illustration on page 26 of your January 1 issue, I feel sure I voice the opinion of most people using British Railways when I say that the progress made in correcting the inadequate and even thoughtless manner in which station names were exhibited up to nationalisation is still very unsatisfactory, though much has been done. The subject should have been tackled forthwith and suitable signs of varying sizes standardised and erected years ago.

I observe that the sign referred to is to be used in the



Southern Region, but it would be good news to hear that the object is to standardise one type of sign for the whole of British Railways.

Passengers should see the name sign at eye level while sitting in the train. I think the new sign a great improvement in the position it is designed for, but consider it suitable also for the majority of positions. One cannot fail to appreciate a sign by its ease of identification, in the manner we are much accustomed to on the Underground.

I therefore suggest that as the matter of standardisation of signs throughout the British Railways has been so long in the melting pot, that the job be tackled and done once and for all.

The present idea is good, but it has a bad feature which should be eliminated: the ornamental frame of a wobbling

coloured background to the name itself is not only unnecessary but confuses the name and attracts attention to itself instead of to the name.

I enclose a sketch in which I have shown the name in black on the big white disc of white background, and without doubt that can be read in half the time it can be on a messy frame of colour; besides, the name should not be in white. There is no clearer or better contrast than black letter on a white background.

If it is anybody's business in these enlightened days to standardise name signs, may we please have the clearest and the one most quickly read, and have it everywhere?

Yours faithfully,

THOMAS E. HAYWOOD
Managing Director

Thomas Haywood & Sons Ltd.,
Railway Signal Works, Coulsdon, Surrey

[General policy as to station signs is laid down by the British Transport Commission, and is varied in detail to suit Regional requirements.—Ed., R.G.]

Australian Transcontinental Services

January 9

SIR,—In the article on the Commonwealth Government Railways in the 1953 edition of your publication *Overseas Railways* the following statement is made under the heading "Diesels on Trans-Australian Railway": "With the withdrawal of steam power . . . the operation and maintenance of a fast efficient service has at last become a reality. Before the introduction of the diesel-electric locomotives, the 1,108 miles between Port Pirie and Kalgoorlie required over 43 hours in one direction, but with the diesel-electrics the schedule has been reduced to 25½ hours."

As far as the Australian transcontinental passenger service, of which the T.A.R. forms the central portion, is concerned, the fact remains that a westbound traveller today can join the "Overland" at Spencer Street Station, Melbourne, on a Sunday evening and be landed in Perth by the "Westland" on the following Wednesday morning—which is exactly what he did 15 years ago.

Of course, there have been local changes: the diesel apparently has to show an improvement regardless of whether there is economic justification or not; but whether our traveller left Melbourne at 7 p.m. behind £12,000 worth of (steam) tenwheeler or at 8 p.m. behind £200,000 worth of diesel is utterly unimportant. On the Trans-Australian section itself, the determination to show the diesel to best advantage has completely wrecked the continuity of the original through service. Then one had a through coach from Melbourne right to Port Pirie. Now, on the "efficient" service the traveller must change at Adelaide and cool his heels there from early morning until 1.15 p.m. Having reached the T.A.R. train his actual time in it seems to be about 2 hr. less than in my time, which is reasonable acceleration for a diesel on a 1,108-mile run.

I am well aware that the schedule in force when I crossed the continent in 1940 became a war casualty in 1942, but that is no reason to imply that it never existed.

Yours faithfully,

L. IRVINE-BROWN

P.O. Box 711, Singapore

[The Commonwealth Government Railways are responsible only for the Trans-Australian portion of the transcontinental journey. There are difficulties in arranging connections between other administrations' trains, which cater largely for other traffics besides the transcontinental, and those of the T.A.R. Reduced running times over the latter are understood to have resulted in the economies to be expected from improved rolling stock user, and so on.—Ed., R.G.]

THE SCRAP HEAP

Arrested Train

On the morning of July 5, 1853, while the Dublin & Belfast Junction train for Portadown sat panting to go in New-foundwell station, Drogheda, the Collector of the County Cess, aided by a number of vassals, descended on the station and proceeded to take possession of the train, as a security against rates unpaid by its owners.

To complicate things further, the passengers included six members of the Grand Jury, who were under obligation to present themselves at Dundalk Court-house that morning in order to be sworn in for the Louth Assizes. Their pleas failed to move the Collector, who refused to allow the train to move until his demands were met. When they eventually were, a contemporary account says that the train "snorted along the line which had just been freed" at increased speed, so that presumably the grand jurors were in time.—From *"The Irish Times."*

Coral Island Railway

The accompanying illustration shows passengers boarding a train on the 2-ft. gauge line on Hayman Island, the most northerly of the Whit Sunday Group on the Great Barrier Reef, Queensland. It links the Royal Hayman Hotel, one of the finest in the Southern hemisphere, with a pierhead close to the flying boat moorings, and is 60 ch. long. The rolling stock comprises one petrol locomotive, four coaches, and two flat wagons. When the hotel is normally closed, during the December-April rainy season, the line carries stores only.

The Queen and the Duke of Edinburgh may ride on the line when they

visit the Barrier Reef Islands during their tour of Australia.

Hudson's Overdraft

What the *Evening Standard* calls "surely the most tactful and kindly letter about an overdraft that has ever been composed" is quoted in "Glyn's 1753-1953," a history of the banking business of Glyn Mills & Company, by Roger Fulford, which is reviewed on another page.

The letter was written by a servant of Glyn's in 1851 to George Hudson, the railway promoter, who was in financial difficulties. It said: "We feel it right to call your attention to the state of your account which is overdrawn to the extent of £2,700, and to mention that we have no means of preventing its being known to our clerks whose attention is called to the fact when cheques are presented for payment."

Victorian Railway Enterprise

As soon as railways began to be built at all, almost every year brought some notable engineering achievement to assist their progress. The Woodhead Tunnel was opened in 1845; the Menai Straits were bridged in 1850; the Saltash Bridge was finished in 1859; passenger trains were running through the Severn Tunnel in 1886. In 1869 engineers of the old London & North Western Railway, eager to accelerate traffic over a difficult junction, built the first flyover crossing in the world at Birdwood Junction.

It is depressing to realise that all these great achievements in transport engineering took place far back in the last century. Few sections of even our most

important main roads have enjoyed anything approaching the enterprise that went into the building of branch lines in Pennine valleys, let alone the main lines of our railway system.—From *"The Manchester Guardian."*

Special Ticket

Mr. Fred Frampton, of St. Mary Cray, says that British Railways have gone to the trouble of making a special ticket for him so that he can go on catching the same train in which he has met his friends on weekday mornings for 23 years.

He travelled with a first-class season ticket from St. Mary Cray to Blackfriars. Then the trains were changed, and a first class carriage no longer halted at St. Mary Cray. So that he could use a season ticket to catch a third class from St. Mary Cray to Bromley and then go in a first class carriage from there to Blackfriars, British Railways issued a special excess ticket. So far Mr. Frampton holds numbers 0000 to 0004.—From the *"Daily Mail."*

A Railway "Folly"

Mr. Gerald Leedam, formerly Secretary & Manager, Cheshire Lines, writes in *Country Life* on the imitation ruin of Ross Castle at Cleethorpes, Lincolnshire. It was ordered to be built by the directors of the Manchester, Sheffield & Lincolnshire Railway. In mid-Victorian days a ruined castle was an indispensable draw for excursion traffic, and the far-seeing directors of the company built the castle, which was named after the then secretary of the railway company, Mr. R. Ross. Mr. Leedam asks whether any similar hoaxes have been perpetrated on the innocence of the British public.

Follow the Glean

(*Video recent newspaper articles*)
Everything's going to be all right,
Treasure this reassurance;
Just when it seemed the strain and stress
Had got beyond endurance
The pundits of the Street of Ink,
Those eloquent romancers,
Revived their ancient battle-cry:
"Fleet Street knows all the answers!"

Slightly sardonic railwaymen
May find some satisfaction
In watching (if they have the time)
The Fleet Street Force in action.
The ink-stained banners forward go,
Winged words, like arrows flighting,
Darken the sky, until the tape
Brings tidings more exciting.

Who knows? Some phrase may hold
the key
To radiant revelation
And even sketch-y prose contain
Some germ of inspiration.
So, reverently, we listen to
The editorial chorus,
Grateful to find the Fourth Estate
Benignly watching o'er us.

A. B.

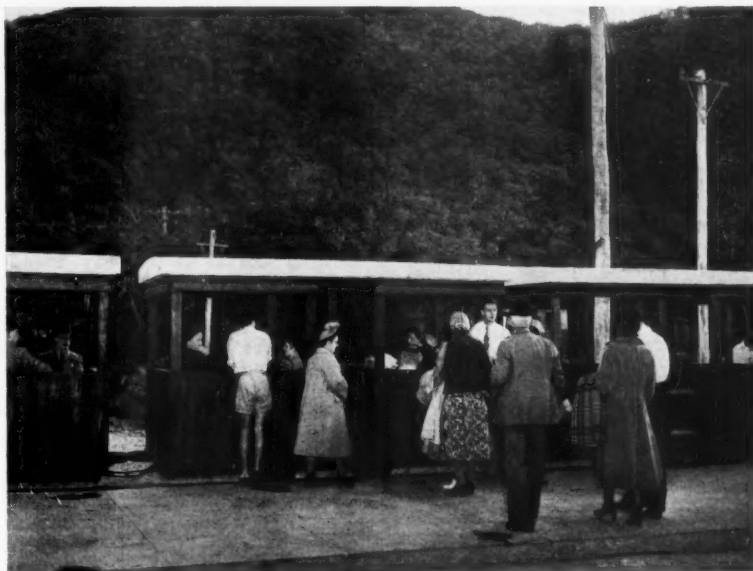


Photo Courtesy]

[Consolidated Press Limited, Sydney

Train at the Royal Hayman Hotel Station of the narrow-gauge Hayman Island Railway, Queensland

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

EAST AFRICA

Revenue and Tonnages

The approximate railway revenue for the month of November was £1,093,587, compared with £1,011,477 for the same month in 1952. The revenue to the end of November, 1953, was £11,423,722, a decrease of £48,405. Indications are that the total revenue for 1953 will be about the same as that for 1952.

The heavy tonnages conveyed by rail from Mombasa Island which have been characteristic of 1953 were well maintained during November; the total of 114,876 tons compared with 91,597 tons in the same month last year. The increased tonnage lifted included general goods, oils and cement, the tonnage of general goods lifted being some 9,200 tons greater than in November, 1952, and 3,500 tons greater than in October, 1953. Export traffic on the Kenya-Uganda section was again low, and by the end of November traffic received at the coast was approximately 120,000 tons less than in the same period of 1952. On the other hand, large quantities of Uganda maize were moved internally and earnings from goods traffic on the Kenya, Uganda and Tanga lines were £36,794 greater than in November, 1952.

On the Central Line, revenue from goods traffic was £14,530 greater than that for November, 1952, and about £4,300 greater than for October, 1953. Earnings from livestock were little above those for November, 1952, and were £8,674 less than in the previous month, in view of the cessation of exceptional movements to Dar es Salaam from the drought-stricken areas.

CANADA

Nickel Concentrate from Lynn Lake

The first consignment of 280 tons of nickel concentrate from the new Sherritt-Gordon mine has moved out of Lynn Lake, over the recently-constructed 144-mile Canadian National Railways extension from Sherridon. The nickel concentrate is destined for Fort Saskatchewan where it will be stockpiled in preparation for the opening of the new \$1,000,000 processing plant.

Level Crossing Accidents

Nearly half of all crossing accidents during the Christmas and New Year holiday periods were caused by vehicles running into the side of the train, according to a report by Mr. J. P. Wadsworth, Superintendent of Safety, Canadian National Railways.

Eighteen vehicles run into the side of the train and five other stalled or stopped foul of the track in 40 crossing accidents, he said. Four persons were killed and 24 injured. Another 24 passengers in motor cars involved escaped injury.

During the first eleven months of

1953, 269 vehicles struck the sides of trains at level crossings. In more than 600 other accidents, the vehicles stalled, stopped foul of the track or tried to beat the train at crossings. The railway filed claims against car owners in 705 cases and collected \$150,855 for damages to trains and railway property.

P.G.E. Vancouver Extension

Mr. Bennett, Premier of British Columbia, announced at Kelowna that the Social Credit Government will extend the Pacific Great Eastern Railway from its present southern terminus at Squamish to Vancouver, and that preliminary work may start in a few weeks. The route will follow the shore line of Howe Sound, and from Horse Shoe Bay to North Vancouver the right of way approved for such an extension many years ago will be used, passing through the West Vancouver residential district. The extension is expected to cost \$12,000,000, and to be completed in two years.

UNITED STATES

Boston & Maine "Businessman"

The increasing use of diesel-hydraulic railcars for filling gaps in main line passenger services is shown by the new "Businessman" of the Boston & Maine Railroad. Two of these cars, coupled and worked multiple-unit, now are providing an express service from Boston to Portland, Maine, at 7.50 a.m.; the earliest previous northbound express was the 9.45 a.m. "Kennebec". Stops are made at the Boston suburb of Wakefield, and at Exeter, Dover, North Berwick, and Biddeford; Portland, 114.7 miles, is reached in 125 min. The return journey, with the same stops and in the same time, is begun from Portland at 3.30 p.m., 1½ hr. in advance of the 5.10 p.m. "Kennebec".

To fill in its day usefully, the two-car train then leaves Boston at 6.30 p.m., and with stops at Nashua and Manchester reaches Concord, 73.3 miles distant, at 7.55 p.m.; returning at 9 p.m., it is back in Boston by 10.30 p.m. These are faster timings than those of any other trains on the Boston-Concord service. The two cars thus run 376 miles daily. They form part of a fleet of nine of these cars owned by the Boston & Maine, which cost in all \$1,550,000 and operate 38 train workings daily (some on lines from which passenger service previously had been withdrawn), and are known by the B. & M. as its "Highliner" service.

Diesels Replace Electric Working

To minimise the smoke nuisance and expedite train movements, 17 route miles of line (60 single-track miles in all) belonging to the Cleveland Union Terminal Company were electrified in 1930. Since then passenger trains of all

railways approaching the Union Station with steam locomotives have had to stop on the outskirts of the city to change from steam to electric power and vice versa.

The increasing use of diesel-electric locomotives which have been permitted to work through into the city, has gradually reduced the value of the electrification, and it has now been decided to dismantle the electric installation. The few steam-hauled trains still arriving at Linndale, west of Cleveland, will now change their locomotives for diesels to enter the Union Station.

ARGENTINA

Doubling on San Martín Railway

The General San Martín Railway has completed the doubling of the track between Chacabuco and Cucha Cucha at a cost of 2,350,000 pesos.

Argentine-built Rolling Stock

A new plant for the construction of passenger coaches will be erected at Taffi Viejo (General Belgrano Railway) at a cost of 10,000,000 pesos.

BRAZIL

Dissolution of Brazil-U.S. Commission

The Brazil-United States Mixed Commission was dissolved on December 31, when it presented its two final projects, the re-equipment of the Araraquara Railway and the metre-gauge lines of the Central of Brasil. These call for loans from the Washington banks of U.S.\$8,838,000 and U.S.\$1,763,000 respectively, and entail local expenditures of 19,538,000 and 588,413,000 cruzeiros (£390,760 and £11,768,260).

The Mixed Commission has completed 42 projects, involving loans totalling U.S.\$387,329,000 and a local expenditure of 14,369 million cruzeiros (£287,380,000) for improvements to railroads, power supplies, road transport, ports, navigation, agriculture and industrial activities. Railway improvements will absorb U.S.\$145,979,000 and 7,671 million cruzeiros. Contracts have already been signed by the Washington banks for loans amounting to U.S.\$162,196,000. In December the World Bank approved a loan of U.S.\$12,500,000 for the purchase of electric train units for the suburban lines at Rio de Janeiro, for which the tender of the Metropolitan-Vickers Electrical Co. Ltd. was accepted. In December, also, Export-Import Bank signed a contract for an \$8,600,000 loan to the Santos-Jundiaí Railway.

Exchange cover, to the value of U.S.\$209,200, has been distributed for the purchase of five groups of boilers for the British stationary engines in con-

stant use for the past 53 years, on the inclined planes of the mountain section of the Santos-Jundiaí Railway.

The credit of 743,650,880 cruzeiros (£14,873,017), opened by the Brazilian Bank for Economic Development, in favour of the State Government, to finance improvements to the Rio Grande do Sul Railway, is to be expended on the following items: purchase of 502.3 km. of 45 kg.-per-metre rails, strengthening of track, elimination of sharp curves and steep gradients, to be carried out within five years; purchase of 483 36-ton steel wagons, with automatic couplings and air brakes; 25 1,600 h.p. diesel-electric locomotives, modern signalling devices, quarry, workshop and maintenance equipment, including inspection coaches and trailers. Imports will cost the equivalent of U.S.\$11,322,000 during the next three years.

In December President Vargas authorised a credit of 33,000,000 cruzeiros (£660,000) to the Ministry of Communications & Public Works to cover

maintenance expenses of Rede Mineira de Viação. The President has ordered the National Railway Department to call for tenders for the purchase of materials for seven northern and north-eastern railways. The Department proposes to dispense with public tenders.

A start has been made with the extension of the Bahia-Minas Railway from Arassuaí to Salinas and Montes Claro, where it will join the Central of Brazil.

IRELAND

Dublin-North Donegal Freight Service

The Great Northern Railway has introduced the use of sealed containers for the conveyance of sundries traffic from Dublin to North Donegal. The goods, which often amount to 30 tons a day, are loaded into containers at the G.N.R. goods department in Dublin, despatched the same evening, and arrive at Londonderry the following morning. There the containers are

loaded on to lorries for delivery to merchants in the Inishowen Peninsula in the early afternoon. The main centres served are Buncrana, Carndonagh and Moville. The containers are sealed by the Customs in Dublin before despatch, and remain so until broken by the Customs authorities at the frontier post in County Donegal.

G.N.R. Cement Traffic

In 1953 the G.N.R. conveyed 355,942 tons of cement by rail from the siding at Drogheda, and 35,434 tons by road. The total tonnage carried by freight trains showed an increase of 39,122 tons over 1952; the 1952 tonnage had shown an increase of 23,949 tons over the 1951 figure. The drop of 2,000 tons in the 1952 figures for road freight services showed an increase in 1953 of 2,512 tons.

Four cement trains leave Drogheda every weekday, an average of 702 wagons being used each week. During the year, 36,480 wagon loads were conveyed from Drogheda to Dublin.

Publications Received

Poles for Transmission Lines. Hull: Gabriel, Wade & English Limited, Southern Chambers, Waltham Street. 7½ in. x 4½ in. 33 pages. Price 5s.—A new and revised issue has been made of *Wade's Tables*, which for 45 years have afforded useful data for overhead transmission line engineers using wood pole supports. Besides the tabulated information needed for determining the sizes required for different conditions, notes are given on single-pole and other types of wooden supports, and on the basic elements of conductor sags and tensions. In recent years the use of wood poles has become almost universal for low-voltage distribution, and these supports are now practically standard for 11-kV. lines in the United Kingdom, while the design has been adopted for voltages up to 33 kV. Both in Great Britain and abroad there are also examples of portal type wood poles in operation at 132 kV.

Glyn's, 1753-1953: Six Generations in Lombard Street. By Roger Fulford. London: Macmillan & Co. Ltd., St. Martin's Street, W.C.2. 8½ in. x 5½ in. 267 pp. Price 21s.—Railway companies have occupied an outstanding place in the list of commercial customers of the famous private banking house of Glyn's, and 137 British and 84 foreign railways are listed in an appendix. Unlike many other well-known private banks, it was in origin a commercial bank in the City of London, and its private accounts were ancillary to its commercial accounts. As such, it has played an important part in the development of new enterprises, and especially railways. In particular, the work of George Carr Glyn is noteworthy, and his title as the first Lord Wolverton was taken "to mark my connection with the good old

honest company [the L.N.W.R.] in whose service so much of my life has passed." He was also the brains behind the Railway Clearing House. His views on national ownership of railways are an interesting feature of a book of considerable commercial, financial, and railway attraction. The contribution which the partners in the bank have made to public life during two centuries constitutes an important chapter in the mercantile history of this country.

Calendars for 1954.—We acknowledge the receipt of calendars for 1954 from the Japanese National Railways and Henschel & Sohn G.m.b.H.

Roller-Bearing Axleboxes.—The 60,000 or so roller-bearing axleboxes produced for railway motive power and rolling stock by RIV of Turin are illustrated in a six-page folder by such examples as diesel trains for Spain, railcars for Greece, electric locomotives for Italy, and freight wagons for international traffic.

Industrial Diesel Locomotives.—Apart from its participation in the construction of the mechanical portions of Brush-Bagnall diesel-electric locomotives, W. G. Bagnall Limited, of Stafford, makes six diesel-mechanical standard shunting locomotives of 75 to 240 b.h.p. and these are illustrated and described in a coloured folder.

Guide to British Hotels. London: The British Travel & Holidays Association, 64-65, St. James's Street, S.W.1.—Although intended primarily to assist visitors from overseas, a limited number of copies will be sold in this country, price 2s. 6d. each. The 1954 edition contains details of more than 4,000 hotels. Visitors to Britain are encouraged by the Association to comment on establish-

ments listed and to make recommendations for future editions. A separate listing of hotels within 25 miles of London, and explanatory notes in four languages are among features retained in the new edition. The section devoted to London restaurants now includes such information as hours of opening, closing days, and remarks on cuisine.

Vickers Overseas News, Winter 1953-54.—The Winter 1953-54 issue of *Vickers Overseas News* contains an interesting article reviewing a century of development on the Indian railways, with illustrations of past and present scenes, rolling stock and activities. The striking cover illustration in five colours shows a train on the Kalka-Simla line about twenty-five years ago.

Spheroidal Graphite Cast Iron.—A comprehensive publication on the engineering properties of spheroidal graphite cast iron, issued by the Mond Nickel Co. Ltd. helps to establish the position of this material relative to other cast ferrous materials. The tensile strength of S.G. iron is about double that of a high-duty flake graphite iron, with a distinct yield point markedly higher than that of malleable cast iron. Elongation is 1.5 per cent in the as-cast condition and 10-25 per cent in the annealed condition, and the elastic modulus, at 25 million p.s.i., approaches that of steel. This combination of high yield strength, high modulus and good elongation together signify that although S.G. iron has sufficient ductility to permit twisting and bending, it is nevertheless stiff and rigid and requires considerable force to cause permanent deformation. The publication includes a list of typical applications and a bibliography. Copies can be obtained free from the Mond Nickel Co. Ltd., Sunderland House, Curzon Street, London, W.1.

Long-Distance Travel in U.S.A.

*High-speed services increased in number :
fast schedules with diesel-electric traction*

(By a correspondent)

NEARLY all the principal long-distance trains in the United States now are composed of modern lightweight streamline stock, with the "coach" or lower class of passenger accommodated in cars equipped throughout with adjustable reclining chairs, and the Pullman passengers for the most part in single-room cars of many different types, though there is still some demand for the older type of car with convertible "sections."

Pullman passengers have no advantage in speed over "coach" passengers; where passenger business is adequate, separate set trains at equal speeds are run, such as the all-Pullman "Super-Chief" and the all-coach "El Capitan" of the Santa Fe on the Chicago-Los Angeles run, or the all-Pullman "Panama Limited" and all-coach "City of New Orleans" of the Illinois Central between Chicago and New Orleans. The new and highly popular "dome cars" now in used on scenic routes are provided for both classes of passenger. There have been special service charges on certain of these trains, but the present tendency is to abolish them, as recently on the Santa Fe "Chief" and "El Capitan."

Diesel-Electric Traction

The present high speed position in the United States could not have been attained without the help of diesel-electric traction; over many of the main lines now used by some of the fastest trains in the U.S.A., there was no high speed until the first diesel-hauled trains had made their appearance.

On these lengthy fast runs both the continuous availability and performance efficiency of diesels can be put to their maximum use. The smooth and smokeless running of the diesels, and the attraction of the stainless steel stock that has been introduced with them have made a strong appeal to the travelling public. It is contended that but for the substantial profits earned by many of these streamliners, the American passenger traffic position might have been considerably worse financially than it is today.

No Deceleration

A short time ago the impression gained currency that United States railways were experiencing some reaction against the fast passenger schedules introduced with diesel traction, and that the fastest trains were being slowed down. The facts were, first, that the Interstate Commerce Commission had imposed a ban on any speed in excess of 80 m.p.h. over lines not equipped with A.T.C., and that this had made it necessary to increase the running time of one or two very fast trains, as, for

example, the "Denver Zephyr" of the Burlington and the "City of Denver" of the Chicago & North Western and Union Pacific west of Omaha. The deceleration, however, was only 30 min., and these trains are still required to cover 1,036 and 1,049 miles respectively in 16½ hr. westbound and 16 hr. eastbound, with many intermediate stops.

Temporarily, also, the New York Central System decelerated certain well-known trains between New York and Chicago, including the "Twentieth Century Limited," in the interests of better timekeeping. Not only has this train now been restored to its normal schedule of 16 hr. in each direction, however, but the "Commodore Vanderbilt" also now is given the same overall timing, which includes 40 min. at intermediate stops, and requires a running average of over 60 m.p.h. throughout.

Heavy Loads

Both expresses are composed of single and double room or roomette accommodation only, with restaurant cars and lounges. The expenditure on luxury travel can be gauged from the fact that both these heavy formations, of at least fifteen 85-ft. cars each, can be filled night after night with passengers paying first class fare plus sleeping car supplement. In the "Twentieth Century," which conveys only passengers travelling the entire distance, an additional special service charge is made.

The Pennsylvania Railroad similarly has its 16-hr. "Broadway Limited" all-sleeping car train between New York and Chicago, now without supplementary service charge. The speeds run by these heavy trains may be gauged by such times as 126 min. over the 141 miles from Englewood to Fort Wayne 67.1 m.p.h., or 108 min. for the 123 miles from Gary to Fort Wayne (68.3 m.p.h.), and many others of the Pennsylvania New York-Chicago fleet are similarly timed.

The New York Central times are still faster; the 113 min. allowed the "Century" and the "Commodore Vanderbilt" over the 133 miles from Elkhart to Toledo, for example, demands a start-to-stop average of 70.6 m.p.h. These are two out of more than 200 runs timed daily over U.S.A. main lines at speeds of from 70 to 86.2 m.p.h. from start to stop, covering a total distance of nearly 15,000 miles.

Competing Services

The 86.2 m.p.h. mentioned above is one of 26 runs timed daily at over 75 m.p.h. from start to stop on the competing streamline services of three companies, the Burlington, Milwaukee, and Chicago & North Western, between

Chicago and the Twin Cities of St. Paul and Minneapolis.

Whereas in 1934 one day train in each direction over each route, taking roughly 10 hr., sufficed to carry the day traffic, there are now eight streamliners each way, averaging 6 hr. 29 min. for an average length of journey of 417.7 miles.

The most remarkable of these services are the Burlington "Twin Cities Zephyrs," which four times daily run the 426.9 miles of the Burlington route between Chicago and St. Paul in 6½ hr., including eight intermediate stops, and with such precision of operation that the 8.45 a.m. "Morning Zephyr" from Chicago, having reached Minneapolis at 2.30 p.m., is turned, cleaned and watered, and is starting back again to Chicago at the same speed 30 min. later. Timekeeping by these "Zephyrs" would be impossible without daily maximum speeds of 100 m.p.h., which are attained regularly also by the "Hiawatha" streamliners of the Milwaukee Road.

Transcontinental Trains

Westwards from Chicago more and more high-speed streamline trains have been put on between Chicago and the Pacific Coast cities of Los Angeles, San Francisco, Portland, and Seattle, until now, over the Santa Fe, Chicago & North Western-Union Pacific, Burlington-Great Northern, Burlington-Northern Pacific, Burlington-Rio Grande-Western Pacific, Milwaukee and Rock Island-Southern Pacific, daily service is provided by twelve such trains in each direction, over routes from 2,212 to 2,322 miles in length.

Because of the distance involved, four or five complete train sets must be provided for each service. To compensate for reduced speeds over many hundreds of miles of mountain grades—the Santa Fe main line, for example, passes over four summit levels of from 7,000 to 7,573 ft. altitude—there must be very fast travel over the prairie lands east of the Rockies to make possible such high end-to-end speeds as the 56.4 m.p.h. of the Santa Fe "Super-Chief," "Chief" and "El Capitan" or the 58.3 m.p.h. of the Chicago & North Western-Union Pacific "City of Los Angeles" and "Challenger."

RAILWAY BENEVOLENT INSTITUTION.—At their meeting on January 20 the Board of the Railway Benevolent Institution granted annuities to nine widows and thirteen members involving an additional liability of £416 ls. per annum. Eighty-seven gratuities were also granted amounting to £770 to meet cases of immediate necessity. Grants made from the casualty fund during the month of December, 1953, amounted to £559 10s.

*Sixteenth International Railway Congress***Modern Constructional Problems***Modernisation of station buildings and
standardisation of unit construction*

DR. F. F. C. CURTIS, Architect, British Transport Commission, undertook to summarise the replies to Question 2 on the several subjects to be discussed next May by the Sixteenth International Railway Congress in London which were submitted by a group of 23 railway administrations, most of them in English-speaking countries. Some of the railways concerned are publicly and others privately owned, and their size, development, and economic and financial structures, differ considerably. Nevertheless, their views on these architectural and engineering problems proved to be broadly similar.

Replies showed that proposals for reconstruction and modernisation of stations were accompanied by estimates of traffic and revenue expected on only two of these railways, British Railways and the Chicago, Burlington & Quincy Railroad, their estimates being based on results over a period of preceding years. In the London Midland Region of British Railways, and probably, Dr. Curtis thinks, on other systems, selected previous schemes are back-checked to show how far expectations have been realised in the past. It must be understood, however, that cost of modernisation is not necessarily related to traffic originating or terminating at the particular station. Other factors include questions of exchange and transfer traffic, the age and condition of the existing buildings, existing maintenance liabilities, and possible economies in structure or staff due to change in traffic or improved methods of working.

The cost of modernisation is generally met from revenue, working capital, or renewal and depreciation reserves, but on some systems in less developed countries of the British Commonwealth loan capital is used. No capital contribution is sought either from local authorities or from station shops, res-

taurants, hotels or advertisements, except on some Continental railways, unless the reconstruction work is directly carried out for their benefit. Normally, minor works are charged to capital only in the case of improvements. In India, new capital works must show a return of $4\frac{1}{2}$ per cent on outlay; unremunerative works, such as the provision of passenger amenities, are charged to a development fund created out of revenue. In general, advantage is taken in the planning stage of up-to-date equipment and future methods of working, and frequent consultation between all parties concerned is essential.

Standard Unit Construction

The development of standard unit construction would seem to be best suited to temporary structures that can be quickly built and easily enlarged or adapted as necessary. Most railways use standard units or standard construction in some form. Complete constructional systems are generally combinations of post-and-panel walls and beam-and-slab roofs. They are used for such structures as platforms, fencing, line-side huts, houses, and engine and goods sheds. Modular or grid planning is seldom used, and no special attention is paid to insulation, though a double-skin or sandwich cladding is often incorporated in unit construction. For small structures railway labour is usually employed, and units are often made only as required. In Scandinavia standard components are developed in collaboration with the building-trade and building-research institutes.

Replies show that standard equipment and furniture rather than standard buildings hold the field in general development. Even in small improvements at existing stations, standard components such as booking-office windows, seats, lights, poster panels, and fencing

can easily be incorporated, whereas post-and-panel construction may clash with the older buildings and their surroundings, unless suitable facings are available.

It is generally agreed that unit construction used in appropriate cases is cheaper and quicker than older forms of construction. There is also the advantage that components may be salvaged and re-used economically. Actually, unit construction is not necessarily cheaper in materials, which are much the same as those normally used, but in certain cases key materials have been expressly omitted from its design.

Fluctuating Costs

Similarly, the consensus of opinion is that fluctuating costs of labour and materials do not adversely affect the application of this form of construction, but in some cases fluctuations in the cost of building labour may encourage the use of the unit system, while those in the cost of factory labour and materials will also affect other forms of building. As the scope of unit construction is limited to low and comparatively small structures, it does not prejudice initiative in the use of new forms of construction, especially for larger buildings, which must still be planned, and the elements of the system must be adapted to them.

Some railways are now using completely pre-assembled small structures which, if they can be accommodated within the limits of running dimensions, are transported bodily to prepared sites; in Finland small houses are treated in this way. It would seem, however, that the field for such measures is limited, unless a large number of transportable structures are required at one time, or many temporary buildings are likely to have to be moved to new sites at short notice.

RECTIFIER DEVELOPMENTS.—A comprehensive display of Westalite rectifiers at the forthcoming Radio & Electrical Component Manufacturers' Federation Exhibition will include many new developments. Pencil type units containing double- and quadruple-voltage elements will be shown in both normal housings and two types of construction for use under full tropical conditions. Miniature rectifiers containing quadruple-voltage elements in a number of different housings will be on view for the first time. Rectifiers for industrial d.c. power supplies and tropical type units will also be shown as examples of new sealing methods developed in the company's laboratories. A typical rectifier as fitted to "Comet 1-2" for aircraft power supplies will be shown, together with a new type of motor cycle battery charging recti-

fier, both types of units operating from engine-driven alternators. Germanium diodes, instrument rectifiers, Westectors, telecommunication units and a range of contact-cooled rectifiers will also be shown at the exhibition.

MEAT TRANSPORT ORGANISATION LIMITED: CESSATION OF GOVERNMENT SPONSORSHIPS.

—The Meat Transport Organisation Limited has received notice from the Minister of Food that the contract under which the Organisation has operated since the beginning of the last war will terminate on June 30, or at some subsequent date should the de-control of meat take place later. The board has considered continuation of M.T.O.L. in a form suitable to private enterprise operation after the cessation of Ministry of Food sponsorship and has de-

cided that a draft scheme shall be prepared on which work is proceeding. It is emphasised that in no circumstances will any commitment in connection with the continuation of the organisation be entered into until all operators concerned have had an opportunity of expressing their views on the draft scheme.

"SEX" OF SEASON TICKETS.—Slough magistrates are stated recently to have asked the Press not to report the method by which it is possible to identify whether a weekly season ticket was issued to a man or a woman. A Slough resident was charged with attempting to use a ticket issued to his sister, of the same address, which was not transferable. He pleaded guilty and was fined £2. His sister was fined for aiding and abetting.

British Railways Heavy Freight Locomotives

New 2-10-0 type for mineral traffic working with a high main-line route availability

B RITISH Railways have recently completed at Crewe Works the first of a new type of 2-10-0 heavy freight locomotive intended principally for working mineral traffic. The design was carried out under the direction of Mr. R. A. Riddles, who at the time the design was prepared, was the Railway Executive Member for Mechanical & Electrical Engineering. The parent office for the design of this class is Brighton, although certain sections were designed at Derby, Doncaster and Swindon.

The initial order comprises 20 locomotives, Nos. 92000-92019. The new design is classified in motive power class "9," and in spite of its size, has a fairly general route availability over large sections of British Railways. The various features and details of the design are common with those of the British Railways standard types and the leading dimensions are as follows:—

Cylinders (2), dia. and stroke	20 in. by 28 in.
Wheels, coupled, dia.	5 ft.
Wheels, tender, dia.	3 ft. 3½ in.
Wheels, bogie, dia.	3 ft.
Wheelbase, coupled	21 ft. 8 in.
Wheelbase, engine	30 ft. 2 in.
Wheelbase, engine and tender	55 ft. 11 in.
Heating surface:	
Tubes	1,836 sq. ft.
Firebox	179 sq. ft.
Total evaporative	2,015 sq. ft.
Superheater	535 sq. ft.
Grate area	40.2 sq. ft.
Boiler pressure	250 lb. per sq. in.
Tractive effort	39,667 lb.
Adhesion factor	4.38
Weight of engine in working order	86 tons 14 cwt.
Weight of engine and tender in working order	139 tons 4 cwt.

Boiler Design

The boiler is similar in many respects to the wide firebox types fitted to the classes "6" and "7," 4-6-2 types. Because of the need for placing the firebox above the trailing pairs of coupled wheels, of as great a diameter as 5 ft. it has not been possible to utilise an existing boiler. A new boiler has there-

fore been designed, which incorporates pressings made from the same press blocks as for the class "6," while the front tubeplate uses the same pressing as that for the class "7." The firebox is shallower than the 4-6-2 engines and, in addition, it has been necessary to employ a firegrate, the rear portion of which is horizontal and the front portion sloping.

The boiler shell is of high-tensile steel plate, the barrel consisting of two rings, the rear ring being tapered. The plate from which the barrel rings are rolled is ½ in. and ⅝ in. thick respectively and the outside diameter are 5 ft. 9 in. at the front end and 6 ft. 1 in. where the barrel meets the Belpaire firebox. The smokebox tubeplate is of the drumhead type ¼ in. thick and there are 35 large flue tubes 5½ in. dia. outside 7 s.w.g. thick, and 138 small tubes 2 in. dia. outside and 11 s.w.g. thick. The length between the tubeplates is 15 ft. 3 in.

The firebox is of the Belpaire type and is 7 ft. 5½ in. long at the bottom, with a maximum outside width of 7 ft. ½ in. giving a grate area of 40.2 sq. ft. The outer steel plate is ½ in. thick and the wrapper plate of the copper inner firebox is ⅝ in. thick. The throat plate is sloping and a combustion chamber is provided, while the backplate is also of the sloping type. The copper tubeplate is 1 in. thick.

All the firebox water space stays, except those in the rows nearest to both the firebox backplate and throat and tubeplates, are of Monel metal, fitted with steel nuts inside the firebox. The extreme rows referred to are made of copper and riveted, in order to facilitate caulking of the joints between the plates. The roof, longitudinal and transverse stays are of steel. The lagging of the boiler and firebox consists of Fibreglass mattresses in the case of some of the locomotives, while others will be

fitted with lightweight asbestos mattresses.

The grate is of the rocking type and consists of 12 rocking sections, each fitted with 12 grid type firebars. It is divided longitudinally so that the right-hand and left-hand sides can be rocked independently. The ashpan is of the self-emptying type.

The regulator is of the grid type, the valves being horizontal so as to be placed as high as possible, as the dome has for reasons of clearance to be very squat. The operating gear enters the boiler transversely, passing through a stuffing box on the side of the barrel. The rod from the cab is external and is divided into two lengths at a central rocking lever which compensates for relative thermal expansion.

The superheater consists of 35 Superheater Company's ball joint type elements, 1½ in. o/d. and 9 s.w.g. thick, arranged in five rows of seven. The header is in cast iron and is of orthodox type. Two standard clack valves are arranged for top feed and are placed approximately at 30 deg. on either side of the vertical centre line, on the front barrel ring. They deliver the feed water on to two inclined deflectors clear of the tube bank.

The steam manifold, incorporating separate shut-off valves to each auxiliary steam supply, is mounted on the top of the firebox outside the cab. This forms the mounting for the whistle valve which is operated by means of a Bowden cable. The whistle is of the single note type. The steam manifold can be isolated by means of a main stop valve. This when closed cuts off the steam to all the auxiliaries, except the boiler pressure gauge. Two standard water gauges of the tube type are fitted on the firebox backplate. The Ross Pop safety valves are mounted on a recessed seating on the top of the rear

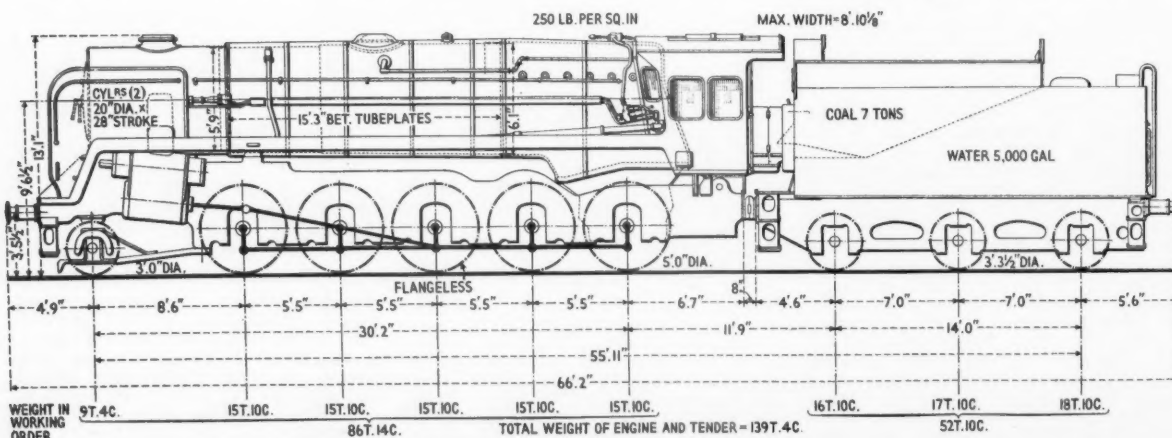


Diagram showing principal weights and dimensions of the locomotive

barrel ring behind the dome. The smokebox is of cylindrical construction rolled from $\frac{1}{8}$ in. thick steel plate. It rests on a fabricated saddle which also forms a rigid stay between the two outside cylinders. Self-cleaning apparatus is provided, consisting of a nearly vertical plate in front of the tubes and a horizontal table plate so as to conduct the gases downwards and to the front of the smokebox. A wire gauze screen is placed across the gas passage to the chimney which prevents the emission of large particles of unburnt fuel. The blast pipe has a single exhaust nozzle of $5\frac{1}{8}$ in. dia. and four Cardew type lower nozzles are incorporated in the cap.

Frame Particulars

The frames are particularly rigid and robust. They consist of $1\frac{1}{4}$ in. thick frame plates spaced by vertical stretchers. Horizontal plate stretchers extend rearwards from the saddle, continuously to the ashpan at a level just above the horn spaces, while at the bottom of the frame rigid cross stretchers are formed integrally with the vertical stretchers. The frame plates are located in the planes of the centre lines of the axleboxes, and the hornblocks, which are symmetrical and of horseshoe form, are welded in, being provided with manganese steel liners on the guide faces.

The bottom edges of the frameplates are stiffened by means of steel castings of inverted "Tee" form, which fulfil two additional functions. One is that they are cast integrally with the spring hanger brackets and the other that they contain the registers for the hornstays. These castings are riveted to the frame using the same rivets which engage the lower cross stretchers. When the hornstays are in position the frame plates have what is virtually a continuous bottom flange. Between the fourth and fifth pairs of coupled wheels the frame has to be cut away to clear the firebox, and



Rocking grate and ashpan assembly

to retain an adequate strength as a beam at this point stiffening plates are riveted to either side of the main frame plates.

The dragbox at the rear end is fabricated and the coupling to the tender is by means of a drawbar having plain eye ends, that in the engine having an elongated hole. Central curved rubbing blocks are provided on both engine and tender and under normal conditions these run $\frac{1}{4}$ in. out of contact. Two spring-loaded buffers are fitted to the tender dragbox and press against flat rubbing plates on the engine dragbeam.

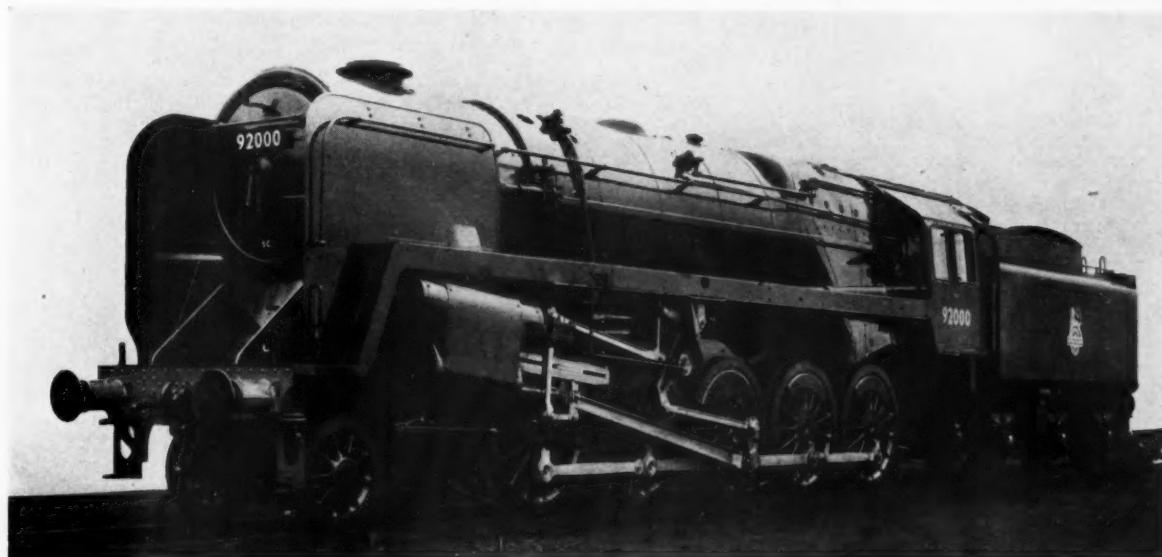
The boiler is carried on the frames by a saddle fitted to a cross stretcher close to the front tubeplate. At the back end the expansion blocks, fitted to extensions integral with the foundation ring, rest on suitable frame stretchers at both ends of the firebox. The footplating along the sides of the boiler is carried

on brackets fitted to the boiler shell by means of studs, and further forward on brackets fitted to the smokebox.

Plain bearing axleboxes are employed throughout the engine. The coupled wheel axleboxes are steel castings, with tight-fitting steel keeps at the bottom to maintain parallelism of the guide faces, which latter are lined with manganese steel. The bearing consists of a pressed-in horseshoe brass lined with whitmetal. An oil tray is bolted to the keep under the journal and this contains a worsted pad, to distribute the lubrication. Oil is fed to the oil tray from a mechanical lubricator. The pony truck axleboxes are bronze castings, white-metalled and are not mechanically fed

Cylinders and Valve Gear

The two cylinders, placed outside the frames are steel castings and are fitted with cast iron liners to the steamchest and cylinder barrel. The cylinders are



British Railways 2-10-0 type heavy freight locomotive for mineral traffic operating

20 in. dia. \times 28 in. stroke. The piston valves have a nominal diameter of 1 in. and are driven by Walschaerts' valve gear giving a maximum travel in full forward gear of $7\frac{7}{8}$ in. with a steam lap of $1\frac{1}{2}$ in. and a lead of $\frac{1}{4}$ in. The piston head on the first locomotives is of the box type made as a steel casting and fitted with two rings and a bronze spring-loaded slipper, designed to carry the weight of the piston and minimise wear between the piston head and the cylinder barrel. Later engines will have a forged steel piston head of light type which will be flash-butt welded to the piston rod. Slidebars of the three-bar type are provided in conjunction with an underhung crosshead.

Lubrication of the cylinders and piston valves is by atomised oil fed from a mechanical lubricator. The lubricator also feeds the piston rod

both sides of the engine. This leaves the fore-and-aft balance of the locomotive the same as if the normal procedure were followed, namely, of making the reciprocating mass balance coincide with the rotating mass balance.

The system reduces the "wheel" hammer blow (but not the "axle" hammer blow) and also saves approximately 2 cwt. of balance weight. Steam sanding is provided to the leading and driving coupled wheels for running in the forward direction, and to the driving wheels only for reverse running.

The pony truck, with 3 ft. dia. wheels, is generally of similar design to that used on the British Railways standard locomotives.

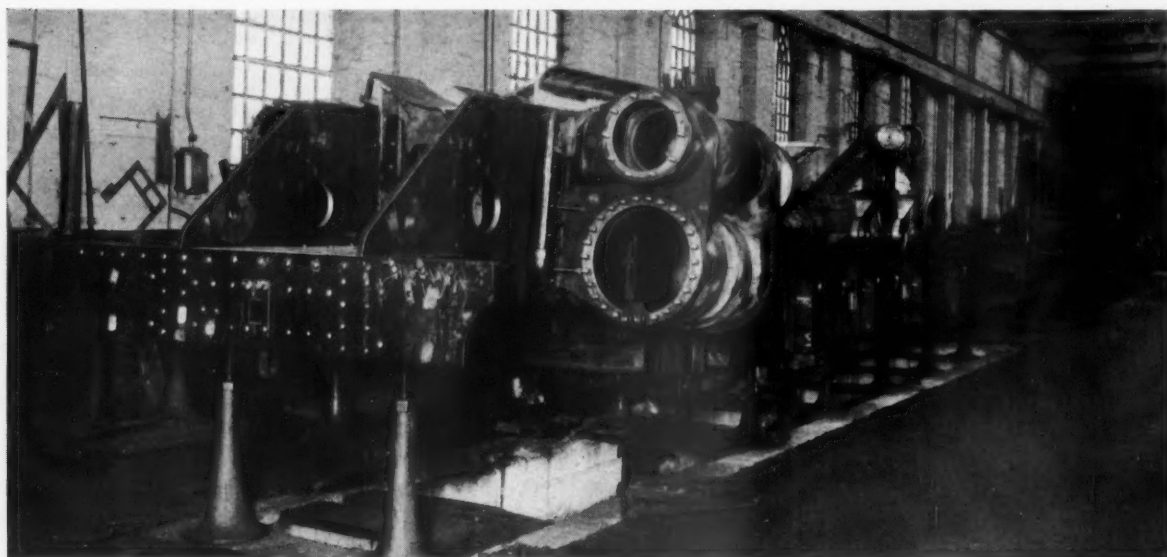
The cab follows the same general layout as that used on the British Railways standard tender locomotives. Unlike the earlier standard designs, in which

provided at frequent intervals, high coal capacity becomes the important factor.

To meet these requirements a new design of tender has been produced, in which the coal bunker extends to the full width of the water tank. The first batch of tenders, however, will be of the existing pattern, having the narrow coal bunker.

Coal and Water Capacities

The coal and water capacities of the different batches will necessarily vary according to Regional requirements. All the tenders run on six wheels of 3 ft. $3\frac{1}{2}$ in. dia. and the axles are provided with British Timken roller bearing axleboxes placed outside the wheels. External feed water sieve boxes are provided on either side of the tender, which can be withdrawn for cleaning. Cupboard accommodation is provided on



Front-end view of the locomotive showing the fabricated saddle

packing and the valve spindle rear bush. The valve gear is lubricated mainly by grease and consists of plain bearing joints, except in the case of the return crank which is provided with self-aligning ball bearings. The reversing gear consists of a screw located at the reversing shaft with the nut acting directly upon the reversing shaft arm. A tubular shaft connects the screw to the hand-wheel in the cab, which is of the end-on type driving through bevel gearing. The cylinder cocks are steam-operated.

Wheel Balancing

The five pairs of coupled wheels are 5 ft. dia., the tyres are secured to the cast-steel centres by Gibson rings. The balancing follows a principle not previously employed in this country, in which the rotating masses are fully balanced in the normal way but the reciprocating masses are statically balanced to the equivalent of 40 per cent, by placing lead weights in the coupled wheels in the same phase on

the whole of the footplate was on the engine, fall plates are re-introduced. Gangway doors are fitted between engine and tender.

Seats with back rests are provided for both driver and fireman. Hinged side windscreens are fitted on the outside of both sides of the cab. One live steam and one exhaust steam injector are fitted to the right-hand side of the locomotive attached to a bracket carried off the frame, below the cab. The whole of the steam and water controls for these are grouped within easy reach of the fireman.

Tender Design

Various arrangements of tender will be fitted to suit the particular operating requirements of the Region upon which the batches of locomotives are to work. Some regions require a high water capacity in relation to coal, particularly for routes where water troughs are infrequent or wholly absent. For long distance freight work, where troughs are

the tender front, including one compartment lined with stainless steel to contain food.

Steam brakes are provided on both engine and tender, and may be operated either directly by means of a gradual steam brake valve, or in conjunction with the vacuum brake. The following is a list of the principal suppliers of equipment for these locomotives:—

Vacuum brake ejector, driver's brake valve, graduable steam brake valve, and associated brake details	Gresham & Craven Limited.
Roller-bearing axleboxes on tender	British Timken Limited.
Self-aligning ball bearings for valve gear return cranks	Skelco Ball Bearing Co. Ltd.
Reverser transmission shaft	Hardy, Spicer & Co., Ltd.
Buffers	George Turton, Platt & Co., Ltd.
Fibreglass mattresses	W. Gilmour Smith & Co.
Manually-operated blowdown valve	Everlasting Valve Co., Ltd.
Mechanical lubricators for cylinder and axlebox lubrication, etc., atomisers and check valves	Gulf Oil Co. (Great Britain) Ltd.
Superheater elements	Superheater Co. Ltd.

The Quebec North Shore & Labrador Railway

Construction, equipment and operation of the line from the Labrador iron ore deposits to the St. Lawrence

OUR September 5, 1952, issue contained an article on the Quebec North Shore & Labrador Railway, the 360-mile line which is being built to convey iron ore from Knob Lake, Labrador, to Seven Islands, on the north bank of the St. Lawrence Estuary in Quebec Province. In a recent address Mr. J. H. Miller, Chief Mechanical Officer of the railway, has given much additional information on the line, from which the following description is taken.

The track is being laid with 132-lb. rails on 14-in. soleplates fixed to treated hardwood sleepers, spaced 3,200 to the mile; six-bolt fishplates are being used. Initially, the ballast was pit run gravel, but this is now being supplemented with crushed and screened gravel. The method adopted for rail-laying comprises a crane and piecemeal-demountable flat wagons; one-third of the final number

of sleepers complete with soleplates for each day's work is distributed the night before by Kockring "Dumpsters."

The rails are transferred at the nearest siding from standard to special skeleton demountable flat wagons. The latter consist of a pair of $5\frac{1}{2} \times 10$ bogies, carrying detachable skeleton underframes fitted with link and pin couplings; 80 rails are loaded on to each wagon.

After the rails with loosely-bolted fishplates at the leading end have been transferred from the wagons to the one-third sleepers, they are securely bolted together tandem, and held to gauge by four home-made "bridles," or clamps, per rail-length, fitting across the track under the bases of the rails. Though the rails are still unspiked, they have many times carried 125-ton locomotives, working over distances up to two miles on this unspiked track. This

method of rail-laying has been so perfected that the crane can put down one rail every 60 sec., and up to 10,600 ft. of track have been laid in one day.

Problem of Efficient Braking

Apart from three 8-deg. (11-ch.) curves, there are no curves sharper than 6 deg. (14 $\frac{1}{2}$ ch.). The ruling gradients are (a) against the load (southbound trains), 1 in 250, and (b) against trains of empties, 1 in 77; the weight ratio of loaded to empty trains is about 14 to 3. The 1 in 77 ruling gradient is 14 miles long, and is part of a continuous 40-mile fall at gradients of 1 in 200 to 1 in 77. As this descent has to be negotiated by trains weighing 14,000 tons gross behind the locomotive, a severe braking problem is involved. The wagons, which weigh some 125 tons fully loaded, have air brakes with hand-operated empty and load adjusting equipment, providing



Aerial view of the new port at Seven Islands on the St. Lawrence, terminus of the railway, showing the quays on the left and dumper in foreground; the town of Seven Islands is in the background

ratios of 27 per cent loaded and 48 per cent empty. Freight type tight-lock couplers are fitted.

As wagon-dumper unloading is installed at Seven Islands, and the speed of the dumper cycle is the controlling factor in the capacity of that terminal, it was necessary to design the largest type of wagon that was economically feasible for this service. A wagon with a carrying capacity of 125 short tons was possible, but as it necessitated the use of six-wheel bogies, its cost of operational maintenance was much higher than that of an eight-wheel vehicle.

Standard Wagon

It was therefore decided to standardise an eight-wheeler having a capacity of 98 short tons and a tare weight of 27

that these diesels can take loaded trains up 1 in 250 gradients at 15 m.p.h., and empties up 1 in 77 at slightly higher speed. Overall speed restrictions tentatively have been fixed for loaded and empty trains, namely 40 m.p.h. and 50 m.p.h. respectively.

At the 22 crossing loops provided, loaded trains will normally take the straight road, and the centralised traffic control installation should permit them to proceed southwards without stopping the northbound empty trains taking the turnouts and loop lines, which are 5,500 ft. long.

The locomotive units are of the road-switcher type, equipped with multiple-unit control and dynamic braking; they are suitable for shunting duties as well as main-line work, and heavy gradients at both terminals often require two-unit

standard-gauge roads, propel the wagons up to a Barney pit. The Barney hoist then pushes the wagons two-at-a-time, up a steep incline into a two-wagon tandem rotary unloading dumper. From the inverted wagons the ore falls through a screen and crushing plant on to a belt-conveyor which carries it either to the loading quay for loading into ships or to the stackers at the stockpiles. When the wagons are empty, the dumper rights itself, and the two empty wagons are pushed out of the way by the next pair of loaded wagons. The empty wagons roll by gravity into a yard where they are marshalled into trains for return to Knob Lake.

The cycle of the wagon dumper takes about 60 sec., and the belt system can handle 8,000 tons an hour, but is nor-



(Left) construction of bridge across Moisie River Gorge, showing cableway for use of fabricators; (right) lorry with staging for rock drillers in tunnel being driven at Mile 12

short tons. It is all-welded and the body ribs are outside to provide a smooth interior which, with sloping sides and ends, facilitates rapid unloading. This wagon is of the solid-bottom gondola type, and is as long and as low as is economically feasible, to obtain good riding at high speeds. It has 36-in. steel wheels, roller bearings, and a built-in rubber clasp brake gear. Already there are over 700 of these wagons in use for moving construction materials, and they have proved good-riding vehicles, both empty and loaded, at speeds up to 60 m.p.h.

The ore-trains will consist of from 115 to 125 vehicles weighing about 14,000 tons gross, and will be hauled by 6,000 h.p., four-unit diesel-electric locomotives. Experience has shown

shunting engines. With dynamic braking, the braking effort of a four-unit locomotive will supply about 30 per cent of the braking effort required to hold a 14,000-ton train on a 1 in 77 down gradient, and this should greatly assist in recharging the reservoirs during cycle braking on the long descent.

Seven Islands Terminus

The terminal yards at Seven Islands are about three miles long, and include a five-road receiving yard, from which wagons are distributed over a retarder-equipped hump into an eight-road classification yard; each wagon is weighed in motion as it passes over the hump. In the classification yard, narrow-gauge side-arm pusher locomotives, running on tracks between the

mally expected to move about 80 per cent of this tonnage. The 800-ft. loading quay is equipped with two loading towers, a part of the belt conveyor system for distributing the load without moving the ship. The reasons for wagon sorting in the classification yard and for stockpiling are explained editorially in this issue; the mining and grading of the ore is also described.

CHRISTMAS TREES AT SCOTTISH STATIONS.—The Christmas tree displays featured by the Scottish Region at Aberdeen, Dundee, Edinburgh, and Glasgow stations brought in contributions which totalled £1,748 compared with £1,411 last year. In addition to money contributions over 4,700 gifts of toys, games, books, and other articles were collected and were distributed to hospital and institutions.

The Quebec North Shore & Labrador Railway



Rails being unloaded from skeleton flat wagon and laid on sleepers by crane, which moves ahead and places the empty wagon and its bogies beside the line to make room for loaded wagons



Unloading material for construction from a D.C.3 plane at Mile 36 airstrip

Cold Repair to a Rail Breaking Machine

High-tensile steel inserts are placed transversely in the line of fracture

REPAIRS to a fractured cast-iron frame or bedplate of a heavy-duty machine often presents considerable difficulty. Repair by patching is sometimes satisfactory when applied to flat surfaces and the casting is not subject to heavy loading during operation.

The problem of repairs to a casting of irregular form presents further difficulties because it is not easy to obtain that perfect bearing surface with the parent metal without which a patch repair is unsatisfactory. Especially is this so where the equipment is under intermittent load, as with presses and shears.

Metalock Process

The Metalock process developed by Metalock (Britain) Limited for the cold repair of fractured castings, which it is understood is accepted by Lloyd's and other insurance concerns, is an American invention which dates from 1935. The process is in no way a substitute for welding but is a method of repair based on an entirely different principle. Staff are specially trained in this process, which is carried out in situ in the case of heavy castings, a feature which decreases the period when the equipment is out of commission. In the case of light castings, however, these can be repaired in the company's own workshops.

A repair of considerable size was carried out some time ago on a rail breaking machine at the works of Johnsons Steel Co. Ltd., West Bromwich, and is shown in the accompanying illustration. Two Masterlock high-tensile steel blocks were fitted in the fracture, on either side of the 9-ft. fracture. In completing the work four Masterlocks were fitted in conjunction with Metalock keys and the work was completed in nine days by four operators.

In carrying out repairs on the Metalock principle the broken casting is, if necessary, clamped to regain alignment. By means of a jig, lines of pilot holes are drilled transversely in the line of fracture. These pilot holes are then opened out to the predetermined size in the form of a slot, the depth depending on the thickness of the parent metal.

The channel of metal between the holes is removed by a hand-operated pneumatic tool. The result is a series of holes connected by parallel sections. Into the aperture so formed Metalock keys of known tensile strength are driven one after the other and peened into the parent metal. The number of keys used to restore the casting to its original strength is closely calculated.

The fracture between the keys is then drilled and tapped to receive Metalace studs in addition to the keys. After the lacings are inserted the whole repair



Repair to a 9-ft. fracture of a rail breaking machine involving the use of four Masterlock keys, two of which are seen fitted

is pneumatically cold worked to ensure perfect tightness and rigidity and the surface of the repair is finally ground flush. With pressure vessels it is important that the lacings interlock firmly one into the other.

Masterlock Process

The use of the Masterlock high-tensile steel is a further application of the process and is of special value for repairing fractures in heavy-duty equipment as it serves as a shock absorber as well as replacing strength into the broken section. In this repair a series of half-round holes is run round the perimeter of the Masterlock itself.

The block is sunk into the cast iron, both surfaces being flush, the half-round holes matching up with their opposite number already machined in the parent metal. The resultant full holes are then filled with short dowels of alloy steel which are driven home and cold worked pneumatically. An example of this method was the repair to a cold plate-flattening machine for the Consett Iron Co. Ltd.

The side frame had a fracture 42 in. long in metal 10 in. thick and 15 Masterlocks were inserted. Five operators were employed and the work was completed in eight weeks; the repair

was carried out in situ. The firm has recently made a film depicting the Metalock repair process, reference to which was made in our issue of January 8, 1954. The film is on loan to technical bodies on application to Metalock (Britain) Limited, Grand Buildings, Trafalgar Square, London, W.C.2. In addition to companies in various parts of the Continent, organisations are available in Australia, Africa, and India, and elsewhere. The company's organisation is such that immediate service is available on a world-wide basis.

SALE OF FROZEN FOODS ON RAILWAY PREMISES.—Reduction in refreshment room labour costs is one of the advantages claimed in the Ice-Matic automatic refrigerated, coin-operated vending unit, which can be installed readily on station premises, including platforms and other outdoor locations. The commodities which can be sold include ice-cream and quick frozen foods, and in hot climates, sweetmeats, butter and lard and so on. Designed and patented by Ice-Matic Limited, the machine is made by Peerless & Ericsson Limited, and refrigerated by Frigidaire. Electrical refrigeration is by means of the exclusive metermiser (sealed rotary condenser unit). The coin mechanism is an adaptable self-contained unit designed to return any bent or spurious coins.

RAILWAY NEWS SECTION

PERSONAL

Major-General Walter David Abbott Williams, Director of Port Emergency Planning with the Ministry of Transport, who will succeed Sir Reginald Robins as Commissioner for Transport, East Africa High Commission, is 56 years of age. He was educated at Brighton College, the Royal Military Academy and Emmanuel College, Cambridge, and was commissioned in the Royal Engineers in 1917.

as Commissioner for Transport since Sir Reginald Robins relinquished duties in August, 1952, will continue to act as Commissioner until General Williams assumes his duties in April.

Mr. L. C. Grubb, B.Sc.(Eng.), Chief Mechanical Engineer, South African Railways, has been appointed Assistant General Manager (Technical) with effect from January 28, 1954. He succeeds Mr. P. J. Louw, who has retired.

in 1927 and posted to the Great Indian Peninsula Railway as Resident Engineer (Mahoba and Akola). In 1932, Mr. Jack became Assistant Deputy General Manager (Works), and, in 1937, Secretary to the General Manager. His appointment as Resident Engineer at Agra-Lonavla took place in 1938, and, in 1940, he became Divisional Engineer (Jubbulpore, Jhansi and Bhusawal). He was appointed Deputy General Manager (Works) in 1945, and, in 1946, Deputy Chief Engineer. In 1949, Mr.



Photo]

[Elliott & Fry

Major-General W. D. A. Williams
Appointed Commissioner for Transport,
East Africa High Commission



Mr. J. E. Jack
Chief Engineer, Central Railway,
India, 1952-53

He was a Scholar of Emmanuel College, and graduated from the Staff College, Camberley, in 1933. Immediately before the last war, he was employed on the preparation of the plan for the despatch and maintenance of the original expeditionary force to France. On the outbreak of war in 1939, he was placed in charge of the organisation responsible for all freight movements of the British Army. In 1943, he was appointed Acting Major-General of Freight Movement and, after the cessation of hostilities, he became substantive Major-General and Director of Movements (1946). He retired from his position in 1949, becoming Director of Port Emergency Planning with the Ministry of Transport in the same year. So that Major-General Williams may complete the important work on which he is at present engaged, he will not take up his duties in East Africa until April. Mr. A. F. Kirby, General Manager of the East African Railways & Harbours, who has been acting

Mr. A. Swart, System Manager, Johannesburg, becomes Chairman of the South African Railways & Harbours Service Commission with effect from February 1, 1954. He succeeds Mr. H. J. C. Bosman, who has retired. Mr. A. S. Manchip, Relieving System Manager, Headquarters, is acting as System Manager, Johannesburg. (Mr. Swart has been granted vacation leave for the period January 4-30.)

Mr. J. E. Jack, M.I.C.E., M.I.E.(Ind.), A.M.Inst.T., Chief Engineer, Central Railway, India, who retired last November, was born in Polmont, Stirlingshire, on April 19, 1904. He was educated at Lassawade School and the University of Edinburgh, from where he graduated in 1925. Mr. Jack joined the London Midland & Scottish Railway in the Divisional Engineer's office, Glasgow, where he was engaged on survey work. He was appointed to the Indian Railway Service of Engineers

Jack officiated as Chief Engineer for a short period during a leave vacancy, and, during 1950-51, he served as Railway Liaison Officer between the Railway Board and the Industry & Supply Department. From April 2, 1952, until November 4, 1953, he officiated as Chief Engineer on the Central Railway. Mr. Jack, who is a Fellow of the Permanent Way Institution, was Chairman of the Bombay and Western India Section of that body in 1953.

We regret to record the death on January 11, after an operation in Montreal, of Lt-Colonel George Lomonosoff, R.E.M.E. (Retd.), Chief Inspector of the Montreal Locomotive Works. Lt-Colonel Lomonosoff, who was 45, was the son of the late Dr. George V. Lomonosoff, M.I.M.E., who was responsible for the introduction of diesel traction into Russia. Together with his father Lt-Colonel Lomonosoff was in association with Hitchins, Jervis & Partners, Chartered



Colonel D. B. Singh

Appointed Divisional Superintendent, Bikaner, Northern Railway, India



Mr. S. O. Screen

Assistant Divisional Operating Superintendent, Manchester, L.M. Region



Mr. J. M. Kesson

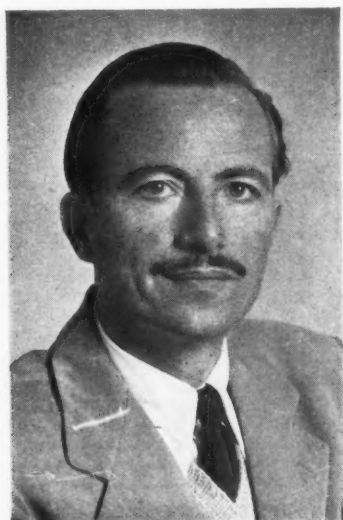
Appointed Assistant Chief Engineer (Administration), E.A.R. & H.

Consulting Engineers, from January, 1935, until April, 1937. In May, 1944, father and son jointly presented before the Institution of Mechanical Engineers a paper on "Condensing Locomotives," of which a summary appeared in our June 2, 1944, issue.

Colonel D. B. Singh, who has been appointed Divisional Superintendent, Bikaner, Northern Railway, India, was born in West Punjab on May 13, 1906. He obtained his B.Sc. Hons. degree in engineering (Internal) of the University of London through the University College, in 1929. As a student in London he took up flying and obtained his "A" licence from the Bristol Flying Club on April 7, 1929, and thereby became the first Indian Civil Pilot. On return to India he took his training on the North Western Railway and joined the Bengal & North Western Railway as an

Assistant Engineer on August 20, 1935. In February, 1948, he was transferred to the Railway Board as a Deputy Director, and in April, 1949, to the Eastern Punjab Railway where he was in charge of their Projects & Design Section until June, 1952. He was also responsible during this period for raising a Railway Unit of the Territorial Army and was commissioned on April 11, 1950, and placed in command of the same with a rank of Lieut.-Colonel. On June 18, 1952, he was entrusted with the construction and running of the Indian Railways Centenary Exhibition, held in New Delhi, with the designation of Administrative Officer, Exhibition. In June, 1953, Colonel Singh was appointed Deputy Chief Engineer, Northern Railway. He was transferred to Bikaner to take up his present post of Divisional Superintendent on the Northern Railway at the beginning of this year.

Mr. S. O. Screen, who, as recorded in our January 15 issue, has been confirmed in the position of Assistant Divisional Operating Superintendent, Manchester, London Midland Region, British Railways, joined the Midland Railway in 1914. He served with the Sherwood Foresters from July, 1918, to April, 1920, when he resumed railway service in the General Superintendent's Office, Derby. In 1923, he was appointed to the personal staff of the Chief General Superintendent, Derby, L.M.S.R., and he transferred to the Chief Operating Manager's Office, Euston, in 1934. He became Head of Engine Workings & Train Diagrams Section, Chief Operating Manager's Office, in 1936, and, from 1938, he was given added responsibilities in connection with emergency operating arrangements on an outbreak of war. In November, 1939, he entered the R.E. and joined the Movements Directorate, War Office, as



Mr. P. H. Hicks

Appointed Acting Construction Engineer, East African Railways & Harbours



Mr. H. C. Murrell

Appointed Senior District Engineer, East African Railways & Harbours



The late Mr. A. R. Simpson

Assistant Solicitor (Scotland), British Transport Commission

a major. In 1940 he was promoted to be Lieutenant-Colonel in charge of the Q(M)5 Branch, War Office; was promoted Colonel in 1942; and, in 1943, he was appointed Deputy-Director of Freight Movement (Home). He was demobilised in July, 1945, and, in August, he became Chief of Divisional Trains Office, Manchester, L.M.S.R. Mr. Screen was appointed Chief of Divisional Trains Office, Crewe, in April, 1946. He was made District Operating Manager, Crewe, in June, 1948, and, in November, 1948, he was re-designated District Operating Superintendent, Crewe. He was appointed District Operating Superintendent, Manchester (W), London Midland Region, in 1949.

Mr. J. M. Kesson, B.Sc., A.M.I.C.E., Construction Engineer (Harbour Development), East African Railways & Harbours, who, as recorded in our January 22 issue, has recently been appointed Assistant Chief Engineer (Administration), was born in 1914, and educated at John Nielson School, Paisley, and at Glasgow University. He joined the Ministry of Transport as a Civil Engineering Assistant in 1937, and was appointed Assistant Engineer in the service of the Kenya & Uganda Railways & Harbours in 1939. Mr. Kesson subsequently became District Engineer, Mombasa, a post which he held up to April, 1950, when he was transferred to Nairobi, first as New Works Engineer at Headquarters and later as District Engineer, Nairobi Engineering District. In July, 1952, Mr. Kesson took charge of harbour development work at Mombasa and Tanga and was gazetted Construction Engineer (Harbour Development), with effect from November 1, 1952. The work at Mombasa consisted of the construction of two deep water berths and transit sheds, extension of lighterage facilities, a new dockyard, port mechanical workshops, and extension of the port area by excavation for additional stacking grounds and port storage sheds. At Tanga, the work comprised the extension of the lighterage wharf, transit shed and stacking ground. Mr. Kesson was gazetted Assistant Chief Engineer (Administration) with effect from August 1, 1953.

Mr. P. H. Hicks, B.Sc., A.C.G.I., A.M.I.C.E., Resident Engineer, East African Railways & Harbours, who, as recorded in our January 22 issue, has been appointed Acting Construction Engineer, was educated at St. Paul's School and London University. In 1937, he joined the Kenya & Uganda Railways & Harbours as Assistant Engineer. After two years on various construction works, he was posted as Engineer-in-Charge of a sub-district in October, 1939. He joined the Army in September, 1940, entering the Kenya Regiment, and then transferred to the newly-formed East African Engineers. After service in Somaliland and Abyssinia he was appointed Chief Engineer, Eritrean Railways & Ropeways, for a period after the initial occupation. On demobilisation, Mr. Hicks was posted as Engineer-in-Charge of various sub-districts on the East African Railways & Harbours system, and then as Section Engineer in charge of the construction of the Limuru Tunnel, completed in 1949. He was promoted District Engineer in January, 1950, and, in November, 1950, he became Resident Engineer in charge of the survey for the Western Uganda railway extension from Kampala to the Congo, subsequently taking charge of the construction of the 209-mile railway to Kasere. In August, 1953, Mr. Hicks was promoted Construction Engineer, Harbour Developments, covering port construction works in progress on the East African coast.

Mr. H. C. Murrell, B.Sc.(Eng.), A.M.I.C.E., District Engineer, East African Railways Harbours, who, as recorded in our January 22 issue, has been appointed Senior District Engineer, was born on May 16, 1911, and educated at Durham School and Bradford Technical College. He was appointed Assistant Engineer, Kenya & Uganda Railways & Harbours, in November, 1939. During the next few years he had experience of both open line and construction work in Nairobi, Eldoret, Nakuru, Mombasa and Tanga. He was promoted to be District Engineer at Mombasa in January, 1952. Since March, 1953, Mr. Murrell has been in charge of the Nairobi Engineering District.

We regret to record the death on January 10, at the age of 45, of Mr. A. R. Simpson, Assistant Solicitor (Scotland) to the British Transport Commission. Mr. Simpson entered the service of the London & North Eastern Railway Company in 1924 in the District Engineer's Office at Thornton, and transferred to the Legal Department in 1930 as a law apprentice. He qualified as a Solicitor in 1935 when he was appointed to the Parliamentary Division. In 1940 he entered the Army and served principally in the Judge Advocate's Department in India, holding the rank of Major. On release from military duties, he was appointed Principal Assistant in his former department and, shortly after the inception of the Transport Commission's Legal Service, he was appointed Assistant Solicitor (Scotland). He acted as Honorary Solicitor (Scotland) to Railway Benevolent Institution. Mr. Simpson was a B.L. of Edinburgh University.

Mr. D. H. C. du Plessis, General Manager, South African Railways, will leave Cape Town by sea in April on an official visit to England and Europe. He is expected to be away from the Union of South Africa until August. Mr. du Plessis will first visit London where he will attend the International Railway Congress. While in the United Kingdom he will visit major electric and steam locomotive works as well as aircraft factories. Thereafter he will proceed to France, Belgium, Holland, Germany, Switzerland, Scandinavia, Austria and Italy, where he will study latest railway developments. On his return journey Mr. du Plessis will visit the General Managers of the East Africa and Nyasaland Railways.

Mr. J. Lucey, Assistant Hotels Manager, Coras Iompair Eireann, has been appointed Manager of the board's hotels department. This controls the hotels at Parknasilla, Killamey, Kenmare, Galway, Sligo and Mullrany, as well as all station refreshment rooms and buffet car services.

Mr. H. F. Pallant, Acting Divisional Operating Superintendent, Crewe, London Midland Region, British Railways, has been confirmed in that position.

Mr. M. J. Wardle, Assistant District Engineer, North Eastern Region, British Transport Commission, has been appointed District Engineer, Bradford.

The following appointments have been announced by the Scottish Region of British Railways:—

Mr. C. B. Glenesk, District Engineer (Glasgow North), to be District Engineer (Glasgow South).

Mr. W. H. Underwood, Assistant (Maintenance) to Motive Power Superintendent,

Scottish Region, to be District Motive Power Superintendent, Glasgow (South).

Mr. W. Marshall, District Outdoor Machinery Engineer, St. Pancras, London, London Midland Region, to be Outdoor Machinery & Electrical Assistant, Mechanical & Electrical Engineer's Department, St. Rollox, Glasgow.

Mr. P. G. Lamont, Assistant Works Manager, Mechanical & Electrical Engineer's Department, St. Rollox, Glasgow, to be Assistant (Maintenance) to Motive Power Superintendent, Scottish Region.

Mr. J. Mitchell, Chief Clerk, Engineering Accountant's Office, Glasgow, to be Assistant to Accountant (Civil & S. & T. Engineering), Scottish Region.

Mr. H. Macdiarmid, Assistant District Traffic Superintendent, Inverness, to be Assistant District Operating Superintendent, Glasgow.

Mr. D. N. Russell, Yardmaster, Whitmoor, Eastern Region, to be Assistant to District Operating Superintendent, Edinburgh.

We regret to record the death on January 20, at the age of 73, of Mr. Henry Joseph Heagerty, who for many years acted as Agent for manufacturers of railway supplies in London. The funeral service took place at Barnet on January 23.

We regret to record the death, on January 18, in his 80th year, of Mr. Edmund John Fox, formerly Managing Director of the Stanton Iron Works Co. Ltd. The funeral took place at Stanton-by-Dale on January 23.

Mr. Leonard H. Short, Deputy General Export Manager of the English Electric Co. Ltd., has been appointed General Export Manager of the company. He succeeds Mr. H. S. Aspinall, who retired from this office on December 31 last. Mr. Aspinall will continue as a Director of the English Electric Export & Trading Co. Ltd., on special duties and projects in connection with the company's export affairs.

Mr. Leslie Gamage, M.C., Vice-Chairman & Joint Managing Director of the General Electric Co. Ltd., left London Airport on Monday, January 18, for a business visit to Malaya and Hong Kong. He will visit the company's branches in Hong Kong, Singapore, Kuala Lumpur, Malacca, and Penang. The visit will also include Ipoh. Mr. Gamage will leave Singapore on the return air journey on February 23.

LOCOMOTIVE & CARRIAGE INSTITUTION OF GREAT BRITAIN & IRE

At the annual general meeting of members and election of Officers and Executive Council, held on January 21, Mr. E. D. Trask, Motive Power Superintendent, Scottish Region, British Transport Commission, was elected President of the Institution, *vice* Mr. S. T. Clayton, Motive Power Superintendent, London Midland Region, who has resigned. Mr. Clayton was elected Vice-President.

Also elected Vice-Presidents were:—Messrs. J. S. Jones, Assistant Motive Power Superintendent, Eastern Region; E. C. Bourne, District Motive Power Superintendent, Western Region, London; T. C. B. Miller, District Motive Power Superintendent, Stratford, London, Eastern Region (re-elected). Mr. W. J. Osborne was re-elected Chairman.

The Annual Dinner, deferred from 1953, was held on Saturday, January 23.

British Transport Commission Statistics (Period No. 12)

Summary of the principal statistics for the four-week period ending November 29

STAFF

—	B.T.C. Head Office	British Railways	London Transport	British Road Services	Road Passenger (Provincial)	Hotels & Catering	Ships & Marine	Inland Waterways	Docks, Harbours, Wharves	Railway Clearing House	Commer- cial Adver- tisement	Legal	Films	Total
Number ...	829*	594,978	94,991	68,812	60,191	15,483	6,022	4,681	20,803	527	201	337	41	867,896

* Includes headquarters staff of former Railway Executive, previously included in the British Railways total

BRITISH TRANSPORT COMMISSION TRAFFIC RECEIPTS

—	Four weeks to November 29		Aggregate for 48 weeks	
	1953	1952	1953	1952
	£000	£000	£000	£000
British Railways—				
Passengers	6,825	6,665	106,144	103,045
Parcels, etc., by passenger train	3,051	2,805	35,438	32,949
Merchandise	8,773	8,442	97,787	96,008
Minerals	3,704	3,522	41,657	38,533
Coal & coke	9,037	8,224	100,202	93,082
Livestock	302	237	2,381	2,125
Total British Railways	31,692	29,895	383,609	365,742
British Railways C. & D., etc.	948	858	10,745	10,405
British Road Services	6,500	6,105	73,069	70,754
Provincial & Scottish Buses	3,390	3,215	46,411	44,257
London Transport—				
Railways	1,478	1,409	16,695	16,443
Buses & coaches	3,179	2,973	37,603	36,279
Trolleybuses & trams	732	703	8,476	8,770
Total London Transport	5,389	5,085	62,774	61,492
Ships	602	583	10,809	10,910
Inland Waterways—Carrying	73	71	834	832
Total passengers	15,766	15,123	220,535	214,018
Total freight, parcels & mails	32,828	30,689	367,716	350,374
Inland Waterways—Tolls, etc.	106	101	1,250	1,225
Docks, Harbours, etc.	1,294	1,169	15,463	14,828
Hotels & Catering	1,220	1,170	15,736	15,033
Total	51,214	48,252	620,700	595,478

LONDON TRANSPORT

—	Passenger journeys	Inc. or dec. per cent over 1952	Car miles	Inc. or dec. per cent over 1952
	000		000	
Railways... ..	44,921	— 2.8	16,262	— 0.5
Buses & coaches	222,970	— 0.1	26,820	— 0.4
Trolleybuses	57,182	— 2.0	5,700	— 1.3
Total	325,073	— 0.8	48,782	— 0.6

INLAND WATERWAYS Tonnage of traffic and ton miles

—	Tonnage	Inc. or dec. per cent over 1952	Ton miles	Inc. or dec. per cent over 1952
Coal, coke, patent fuel & peat	000		000	
Liquids in bulk	574	+ 13.3	7,963	+ 14.3
General merchandise	157	— 3.5	3,865	— 4.1
	326	+ 7.7	5,385	+ 2.4
Total	1,057	+ 8.7	17,213	+ 5.9

BRITISH RAILWAYS Rolling Stock Position

—	Operating stock	Number under repair	Available operating stock	Available stock in 1952
Locomotives	18,527	3,017	15,420	15,448
Coaching vehicles	57,203	5,402	51,801	52,103
Freight wagons... ..	1,121,945	76,847	1,045,098	1,036,266

BRITISH RAILWAYS

Passenger Journeys (Month of October, 1953)

Full fares	Excursions, cheap day, etc.	Other descriptions	Early morning	Season tickets	Total	Inc. or dec. per cent over 1952
19,057,000	19,141,000	3,537,000	16,394,000	21,073,000	79,202,000	+ 2.0

BRITISH RAILWAYS

Freight Tonnage Originating and Estimated Ton-Miles (Period No. 12)

—	Merchandise	Minerals	Coal & coke	Livestock	Total	Inc. or dec. per cent over 1952
Tons originating ...	000 4,035	000 5,154	000 14,625	000 85	000 23,899	+ 3.2
Ton-miles	563,561*	430,341	907,814	—	1,901,716	+ 5.7

* Includes livestock

BRITISH RAILWAYS (Period No. 12)

—	Total steam coaching train-miles	Total electric coaching train-miles	Total freight train-miles	Freight train- miles per train engine-hour	Net ton-miles per total engine-hour	Locomotive coal consumption	
						Total tons	Lb. per engine-mile
1953	13,621,000	3,748,000	11,604,000	8.53	633	1,025,000	62.1
1952	13,583,000	3,722,000	11,224,000	8.38	605	1,042,000	63.6

Westinghouse Brake & Signal Co. Ltd.

Policy of controlled expansion

The annual general meeting of the Westinghouse Brake & Signal Co. Ltd., brief reference to whose financial results for the year ended September 26, 1953, was made in our January 22 issue, was held on January 25. Captain A. R. S. Nutting, Chairman of the company, presided.

The statement by the Chairman which had been circulated with the report and accounts mentions that last November the company made an offer to purchase the 240,000 shares of £1 each fully paid up, comprising the whole of the issued share capital of Gresham Craven & Heatly (Holdings) Limited, in exchange for 255,000 shares of £1 each fully paid up. Treasury consent has been granted and there has been a complete acceptance of the offer by the whole of the shareholders of the holdings company.

It was a term of the offer that the shares issued by Westinghouse would rank *pari passu* with its ordinary stock now outstanding for all dividends or other distributions declared or made after the date of the offer on the ordinary capital of Westinghouse and, in particular, for any dividend declared at the annual general meeting on January 25.

These ordinary shares, when issued, will be converted into stock transferable in units of £1 each. The addition of this new £255,000 stock will make the company's issued capital £2,050,795 in ordinary stock.

The result of the rights issue and the acquisition of Gresham Craven & Heatly (Holdings) Limited, Captain Nutting stated, was that the dividend recommended by the Westinghouse board of 16 per cent (less tax) this year required £180,470.

Product Divisions

The Brake Division, he added, controlled the supply of air and vacuum brakes for railways. The new link with Gresham Craven & Heatly (Holdings) Limited, would be used to pool technical knowledge, design, and development of vacuum brakes and to assist in the production of air brakes to meet the big demand for these products from all parts of the world. The volume of despatched sales and of orders received both showed an appreciable increase over the previous year.

The Signal & Colliery Division maintained and improved on the very satisfactory advances in production, sales, and efficiency begun in all sections in 1950-51.

The division handled railway signalling equipment of all kinds. It had secured the largest signalling contract placed in the past year by British Railways, and had developed and supplied a completely new type of push-button control desk. It had completed the manufacture of the first installation to be made in Australia of centralised traffic control equipment. Its resident engineers were on installation contracts in several overseas countries.

Referring to the Rectifier Division, Captain Nutting said in his statement that the Metal Rectifier, used for the conversion of a.c. to d.c., had been pioneered by their company some 28 years ago, and today had become an accepted component in every branch of the electrical industry throughout the whole world. Since the early days the company had maintained its pre-eminence in this field despite vigorous competition at home and abroad, and would continue to do so.

The English subsidiaries (with one exception) had all done well and had sound policies for the future. The parent company's order book remained at a very satisfactory level which justified their policy of controlled expansion. As soon as present plans were complete they would enter upon a period of consolidation and then decide on future steps.

High Export Figures

The company's export figures, direct and indirect, remained high, despite increasing competition from abroad in certain fields.

All forecasts for the current year and the future must be made with a reservation, which centred around the answer to

the question: "What will be the effects of any percentage increase granted on the consolidated time rates of all grades of adult male workers, the amount accruing being added to earnings?"

The costs in industry today were high, and if they went higher they might lose orders in the world markets. If they did, then full employment would be difficult to maintain. It was futile to talk about such increases in wages being met out of profits.

Provided there was no dislocation of or interference with productive efforts and no increase in costs to curtail purchases of their products or adversely affect existing contracts and orders, Captain Nutting thought that the current year should prove satisfactory in every way.

The report and accounts, and the recommendation of a dividend of 16 per cent on the ordinary capital, were adopted.

Producing Mechanical Handling Equipment

New factory extension of Lansing Bagnall Limited opened at Basingstoke

General Sir Ouvry L. Roberts, Quarter-master-General to the Forces, on January 21 performed the opening ceremony of the extension of the Basingstoke factory of Lansing Bagnall Limited, the building of which had been necessitated by the volume of orders for fork-lift, power pallet, and power stillage trucks, industrial tractors, pallet trailers, hand pallet trucks and other mechanical handling equipment manufactured by the firm.

The extension, in the building of which economy in cost was achieved, is of Glover construction of reinforced concrete with 14 ft. at the eaves and 28 ft. at the ridge of uninterrupted clearance, there being no stanchions to restrict layout, whilst the office accommodation is suspended clear of the ground floor. It provides 25,000 sq. ft. of floor space, now being used for full production, and a commodious canteen, and approximately doubles the productive area, which will enable output to be more than doubled. At present some 600 people are employed in the works.

The firm dates from 1919, when Mr. F. E. Bagnall, foreseeing the possibilities of materials handling in lightening labour and saving space, began to import electric industrial trucks from the Lansing Company, Michigan, U.S.A.; the first order was from Rolls Royce Limited. In the early 1920s, when the U.S.A. Lansing Company discontinued manufacturing their electric trucks, Mr. Bagnall started to manufacture in Britain. Progress was interrupted by the war, but after the easing of wartime restrictions in 1946, has been rapid.

Palletisation Equipment

The range of mechanical equipment constructed in the new extension includes pallet trucks and other equipment for handling palletised loads described and illustrated from time to time in *The Railway Gazette* in connection with palletisation of freight sent by rail.

Of particular interest in its application to railway freight is the Model PP230 pedestrian-controlled battery pallet truck,



Interior of new bay of Lansing Bagnall Limited factory at Basingstoke, showing uninterrupted clearance without stanchions

which was demonstrated before the opening ceremony, of 3,000 lb. capacity and designed for narrow gangways and manoeuvring in railway wagons. The overall height is 2 ft. 6½ in., width 2 ft. 4 in., overall length 4 ft. 5½ in. with 3 ft. long forks (or longer with forks of varying lengths), and weight 1,036 lb. A special feature is the regenerative and rheostatic braking limiting speed on descents.

Other equipment demonstrated on January 21, some for the first time, included an electrically-operated fork truck with fixed mast and tilting carriage. The mast being firmly braced provides a rigid structure, and increased sideways stability. Also shown, besides pallet equipment, were various types of tractor applicable to "smalls" and parcels handling and other station work.

Opening Ceremony

At the invitation of Mr. J. R. Sharp, Director, supported by Mr. E. Kaye and Mr. A. R. Wright, Directors, Sir Ouvry Roberts declared the extension open. He said that the new extension and its products showed how the great need for progress in devising production methods could be met.

Mr. J. R. Sharp, proposing the toast of the guests after the luncheon, said that production had begun in the first bay of the new extension within five months of turning the first sod. They now produced more in one week than they had in the whole of the first year after the war. Lansing Bagnall, he added, offered the biggest range of mechanical handling vehicles of any other firm in Europe, and there were more being developed.

Sir Ouvry Roberts, replying, said the fighting services needed every mechanical handling device they could get so as to solve handling problems cheaply. His policy was to use the commercial article when possible, and the Army used types of fork-lift trucks in general use. Next year they would be spending some £2,000,000 on various mechanical devices, which would help them overcome their civilian and military manpower problems.

FIRST SHIPMENT OF NICKEL TO UNITED STATES BY INTERNATIONAL NICKEL.—From its Port Colbourne, Ontario, refinery, the International Nickel Company of Canada Limited has made the first shipment of metallic nickel, under a contract calling for quick delivery of 120,000,000 lb. to the United States Government over a five-year period ending in 1958. Deliveries will be made at a monthly rate of 2,000,000 lb. until the contract is completed.

ENGLISH ELECTRIC CO. LTD. PRESENTATIONS.—During a recent luncheon given by the English Electric Co. Ltd. at the Connaught Rooms, London, W.C.2, Sir George H. Nelson, Chairman & Managing Director of the company, made a presentation on behalf of himself and his fellow directors, to Mr. Harold S. Aspinall on his retirement from the post of General Export Manager, at the end of December last, as recorded on page 133. He praised the services over the years of Mr. Aspinall, who in his reply said how happy he had been with the company, and particularly in his long association with Sir George Nelson. A second presentation was made to Mr. T. G. Tyson, who had retired from his position as Manager, London and the South.

Staff & Labour Matters

Railway Wages Negotiations

In accordance with Paragraph 4 of the terms of the agreement reached on December 16 last between representatives of the B.T.C. and the three railway trade unions, a further meeting was held on January 21 between the parties concerned.

Paragraph 4 provided that, irrespective of other results emerging from an examination of the salary and wages structure of British Railways staff, the Commission would, within two months from the operative date of the award of the Railway Staff National Tribunal, make a further improvement on a percentage basis of the standard rates in operation prior to the operative date of that award.

In implementation of this promise an offer of an increase of 6 per cent on the standard rates of pay in force before the operation of R.S.N.T. Decision No. 15 was made on behalf of the Commission at the meeting on January 21. The unions indicated that the offer would be considered by their executive committees.

Increases Offered

In the case of the minimum worker whose rate of pay before R.S.N.T. Decision No. 15 was 117s. 6d. a week in the provinces, the offer means an increase of 7s. 1d. a week, whilst for the top-rate driver who had 168s. 6d. a week the increase amounts to 10s. 1d. a week. For the highest paid clerical worker covered by the negotiations with the trade unions the increase would be approximately £45 a year.

After considering the offer of the N.U.R. announced on January 22 that the Commission offer of the bare minimum increase suggested by them during the negotiations in December did not come up to expectations and that it hoped to improve the offer by further negotiations. The A.S.L.E.F. desired to discuss the matter further so that reconsideration might take place of important features of the general settlement.

In the circumstances a meeting between representatives of the Commission and of the three railway trade unions to discuss the position had been arranged, as we went to press, for January 28.

Engineers' Wage Claim

The court of inquiry set up by the Minister of Labour to deal with the engineering wages dispute after a claim by engineering workers for a 15 per cent increase in their rates of pay concluded its investigation on January 21.

Sir Percy Mills, on behalf of the employers, said that there was a drop in exports which was of great significance. The employers were most apprehensive as to the ability of the industry even to maintain its exports if wages and prices are increased, whereas the national economy needs a substantial and progressive increase in exports. Reports had been received in respect of orders lost on price in 1953 in respect of locomotives, textile machinery, electrical equipment, railway equipment, carriages and wagons.

These reports totalled over £50 millions and related to United States, German, Japanese, Swiss and Belgian competition. Current production was generally much in excess of incoming orders so that a lower volume turnover from the engineering industry seemed inevitable.

Parliamentary Notes

Freight Charges

Mr. Ernest Davies (Enfield E.—Lab.) on January 20 asked the Minister of Transport & Civil Aviation, if he would make a statement on the application made by the B.T.C. for a 10 per cent increase in freight charges; and if the Members of the Transport Tribunal acting as a consultative committee had yet made their recommendation to him.

Lady Tweedsmuir (Aberdeen S.—C.) also asked what action he proposed to take on the Commission request.

Mr. Alan Lennox-Boyd said that on December 31, as required by the Transport Act, 1947, he referred the application to the Permanent Members of the Transport Tribunal and asked that their advice be tendered to him as soon as possible. He hoped to receive their report by the end of that week or early the following week. He would consider any representations made before he reached a decision.

Mr. Davies suggested that it was folly for

Cheap Evening Travel in the London Area



Erecting a 6-ft. banner at Charing Cross, London Transport, publicising the new cheap fares which came into operation last Monday

the Government to pursue its road transport policy and deprive the B.T.C. of £8 million surplus at this time and drive up freight charges.

Mr. Lennox-Boyd said he could not accept that conclusion and that all those considerations were argued in the last session at length.

Lady Tweedsmuir asked the Minister to bear in mind that a limit had been reached for passing on rising costs, and to consider action to improve efficiency and economy.

Mr. Lennox-Boyd said he was anxious about improved efficiency and welcomed the assurances given by the union leaders that they would also pursue the same end. As to the problem in Scotland, he understood that the associations in Lady Tweedsmuir's constituency were in touch with British Railways.

Mr. John MacLeod (Ross & Cromarty—Nat. Lib.-Con.) asked whether any action would be taken on the Cameron Report which dealt with this problem as far as the Highlands of Scotland were concerned because the 10 per cent. increase, if it came, would be an intolerable burden.

Mr. Lennox-Boyd replied that the representations in the Cameron Report were a subject for discussion between the Highland authorities and British Railways.

Manila Railway Bonds

To a question by Mr. L. W. B. Teeling (Brighton, Pavilion—C.) on January 25, as to steps taken to obtain repayment from the Philippine Government of sums due to British holders of Manila Railway bonds, Mr. A. D. Dodds-Parker, Joint Parliamentary Under Secretary of State to the Foreign Office, said that he understood that the British bondholders proposed to raise the matter again with the Philippine company and Government. The Manila Railway Company, he said later, had agreed that the next move should be made by them.

Contracts & Tenders

An order for six bogie well wagons has been placed with Société Métallurgique d'Enghien-St. Eloi (Enghien, Belgium), by the Indian Government.

The Portuguese Railways have placed an order for three diesel railcars, a crane wagon and a workshop wagon, valued at Escudos 13,800,000 with Ferrostaal A.G., of Essen. This firm has also secured an order from the Portuguese Railways for 30 covered wagons, 30 open goods wagons and 16 livestock vans to the value of Escudos 12,200,000.

British Railways, Eastern Region, have placed the undermentioned contracts:—

Drewry Car Co. Ltd., London, E.C.2: supply and delivery of fifteen Drewry diesel-mechanical locomotives, 204 h.p., 0-6-0 type

Hunslet Engine Co. Ltd., Leeds, 10: supply and delivery of eight 0-6-0 type 204 h.p. diesel locomotives

Andrew Barclay, Sons & Co. Ltd., Kilmarnock: supply and delivery of four 0-4-0 153 h.p. diesel locomotives, wheelbase 6 ft.

Wellerman Bros. Ltd., Sheffield: resiting of North signal box at Conington Level Crossing.

The Special Register Information Service reports that the United Kingdom Trade Commissioner at Johannesburg has notified the Board of Trade, Export Services Branch, that the closing date for receipt of tenders (No. B6939) issued by the Stores Department of the South African Railways, details of which were given in

our December 4 issue, has been postponed to February 4. The quantities and description of some of the items on the tender documents have also been amended. Tenders already lodged will be retained and duly considered after the closing date unless tenderers request the return of such tenders.

The call for tenders issued by Railway Division, Ministry of Communications, Government of Pakistan, for the supply of 14 broad gauge diesel railcars and 24 trailers, details of which were given in our December 4 and 11 issues, has been amended by the addition of alternative quotations. Tenders are now invited for the following:—

Item 1

Alternative 1

- (a) 14 broad gauge diesel railcars capable of hauling two trailers
- (b) 24 trailing cars (non-powered)
- (c) Spare parts for three years for (a) above

or

Alternative 2

- (a) 14 broad gauge diesel railcars capable of hauling two trailers
- (b) Nine railcars capable of hauling themselves without any trailers
- (c) 24 trailers
- (d) Spare parts for three years for (a) and (b)

or

Alternative 3

- 47 railcars (powered) capable of hauling themselves with a seating capacity of 100 passengers, conforming to specifications in all respects excepting that they will not be required to haul any trailers. These railcars should be capable of working with single driver from either end in coupled units of one, two and three

Spare parts for three years for the above

or

Alternative 4

- (a) 23 railcars capable of hauling two trailers
- (b) 24 trailers (non-powered)
- (c) Spare parts for three years for (a) above

Item 2

Spare power bogie for the diesel railcar

The closing date for the receipt of tenders has been postponed until noon on February 9.

The Special Register Information Service, Board of Trade, Export Services Branch, reports that the United Kingdom Trade Commissioner at Delhi has notified a call for tenders issued by the Directorate General of Supplies & Disposals, Government of India, for the supply of 150 wheels (cast steel) for m.l. railway stock. The closing date for receipt of tenders is 11.30 a.m. on February 12. Tenders should be addressed to the Director General, Supplies & Disposals, Shahjahan Road, New Delhi. A copy of the tender document may be borrowed from the Branch, Lacon House, Theobalds Road, W.C.1.

The Director General of Supplies & Disposals, New Delhi, is inviting tenders for:—

20 20-tons capacity, all-steel covered hopper wagons, bottom dump type, for transport of cement

Tenderers are to furnish with their tenders detail drawings complete in all respects of the wagons offered showing all the loading important dimensions and the sizes of plates, bars, sections, bolts, nuts and rivets, etc., used in the construction of the wagons. Details of the working of discharge hoppers should clearly be shown. Failure to do this may lead to the passing over of the tender.

Tenders are to be submitted to the

Director General of Industries & Supplies, Shahjahan Road (Section SRI), New Delhi, quoting reference SRI/4322-D/IV, and will be received up to 10 a.m. on February 12.

The Special Register Information Service, Board of Trade, Export Services Branch, reports that the United Kingdom Trade Commissioner at New Delhi has notified a call for tenders issued by the Directorate General of Supplies & Disposals, Government of India, for 965 locomotive superheater elements.

The closing date for receipt of tenders is 10 a.m. on February 23. Tenders should be addressed to the Director General of Supplies & Disposals, Shahjahan Road, New Delhi. One copy of the tender documents together with drawings, may be had on loan by United Kingdom firms in order of application to the Export Services Branch, Lacon House, Theobalds Road, W.C.1.

The Director General of Supplies & Disposals, New Delhi, is inviting tenders for 1,308 air extractor ventilators for coaching stock. Tenders are to be submitted to the Director General of Supplies & Disposals, Shahjahan Road (Section SRI), New Delhi, quoting reference SRI/17410-D/1 and will be received up to 10 a.m. on February 16.

A copy of the tender form can be examined at the India Store Department, 32-44, Edgware Road, W.2, on application to the Railway Branch, and the drawings can be seen at the offices of Hodges, Bennett & Co., Ltd., 59-60, Petty France, London, S.W.1, from whom copies may be obtained at a fixed price per sheet.

The Special Register Information Service, Board of Trade, Export Services Branch, reports that the United Kingdom Senior Trade Commissioner at Pretoria has notified a call for tenders issued by the Union Tender & Supplies Board for the supply of one diesel locomotive, 3 ft. 6 in. gauge, 50 h.p., 7-10 tons weight, for shunting.

The locomotive is to be provided with a gearbox giving three speeds varying from about 3 to 9 m.p.h. in each direction, and is to be capable of exerting a low-gear drawbar pull of 4,350 lb. or more. S.A.R.-type couplings are to be fitted, comprising, at each end of the locomotive, an automatic-type coupler attached to spring-loaded drawgear. The coupling centre is to be between 2 ft. 8 in. and 2 ft. 11½ in. above rail level. The knuckle of the automatic coupler must have a gap and hole to take a link and pin for coupling to bell buffers. The locomotive is to be fitted with a steel cab with glass windows. It must be guaranteed for a period of one year against faulty material used in construction, faulty design and workmanship, fair wear and tear excepted.

Tenderers must submit illustrated specifications. The closing date for receipt of tenders is February 25. Import permits or replacement quotas will be posted where necessary.

A copy of the tender documents may be borrowed from the Branch, Lacon House, Theobalds Road, W.C.1.

The British Embassy at Montevideo has notified the Board of Trade, Export Services Branch, of a call for tenders issued by the Administracion de Ferrocarriles del Estado for:—

(i) 500 complete screw couplings for rolling stock, to be in accordance with drawings Nos. 15848 and D.1056. The design of the hook must be according to Standard D.I.N. 5562

(ii) 3,500 kg. of low carbon steel, 1.5 per cent manganese, according to B.S.S. 291-1927-P.D.7-July, 1942, for coupling-bars for wagons. To be supplied in rods size 2 in. dia. by 12 ft. length

(iii) 23,000 kg. of steel as item (ii) but size 2 in. dia. by 14 ft.

(iv) 6,000 kg. of steel as item (ii) but size 3½ in. by 7 in. by 14 ft.

(v) 13,500 kg. of steel as item (ii) but size 7½ in. by 2 in. by 18 ft.

The closing date for receipt of tenders is March 8 and the required guarantee for the maintenance of offers is Ur\$300; offers are to be maintained for 60 days. United Kingdom firms are reminded that tenders must not be submitted direct to official or semi-official Uruguayan organisations but should be forwarded through a properly appointed agent. A list of firms which have expressed willingness to represent United Kingdom firms not already represented in Uruguay may be obtained from the Branch, Lacon House, Theobalds Road, W.C.1. A copy of the tender documents (in Spanish), with the two drawings, may be obtained on loan from the Branch.

The Board of Trade, Export Services Branch, has been advised of a call for tenders issued by the Commissioners of the Port of Calcutta for the supply of 21 broad gauge shunting locomotives with spares and accessories.

Tender forms and specifications may be obtained from Messrs. Rendel, Palmer & Tritton, Consulting Engineers and London Agents to the Commissioners, on payment of a fee of £1 10s., which is not refundable in any circumstances. Tenders should be submitted in sealed covers superscribed "Locomotives—Five-Year Plan" and addressed to Messrs. Rendel, Palmer & Tritton, 125, Victoria Street, Westminster, London, S.W.1, so as to reach them not later than 2 p.m. on April 15.

Notes and News

Vacancy for an Agent.—A manufacturer requires an agent to develop existing business with British Railways. See Official Notices on page 139.

Supervisor for Erection of Telecommunication Required.—Applications are invited for the post of supervisor for erection of telecommunication and block signalling overhead pole route. See Official Notices on page 139.

Traffic Training Officer, Railway Department, Required.—Applications are invited for the post of traffic training officer required for the Gold Coast Civil Service for two tours each of 18 to 24 months in the first instance. See Official Notices on page 139.

Assistant Traffic Superintendent, Railway Department, Required.—An assistant traffic superintendent, railway department, is required for the Gold Coast Local Civil Service for two tours each of 18 to 24 months in the first instance. See Official Notices on page 139.

Executive Assistant Required by London Transport.—London Transport require an executive assistant for office of assistant civil engineer, permanent way. Duties concerned with plant problems, liaison with plant manufacturers and users of permanent way plant. See Official Notices on page 139.

Acquisition by Westinghouse of Gresham Craven & Heatly (Holdings) Limited.—The Westinghouse Brake & Signal Co. Ltd. last November made an offer, which was subsequently accepted, to purchase the 240,000 shares of £1 each fully paid up,

comprising the whole of the issued share capital of Gresham Craven & Heatly (Holdings) Limited, in exchange for 255,000 £1 shares each fully paid up of the Westinghouse Brake & Signal Co. Ltd. Reference to this acquisition and to the policy of pooling technical knowledge, design, and development of vacuum brakes and to assist in the production of air brakes was made in the statement by Captain A. R. S. Nutting, Chairman of the Westinghouse Brake & Signal Co. Ltd., circulated with the company's report and accounts of which extracts are given on page 135.

Accident to Pakistan Express.—On January 21 a mail train from Lahore to Karachi ran into a derailed wagon loaded with petrol between Jhampir and Brandabad, on the North Western Railway, Pakistan, some 70 miles from Karachi. The leading coaches of the mail train caught fire. The number of casualties is put at 60 dead and 50 injured.

Park Royal Vehicles Limited.—The net profit of Park Royal Vehicles Limited and Subsidiaries for the year ended September 30, 1953, was £161,435 (£58,128), after all charges. The preference dividend declared was £10,750 (£10,500), with first and final ordinary dividend of 10 per cent, free of tax £47,500 (8 per cent free of tax £38,000). The net profit is stated before crediting an over-provision of income tax on profit of the previous year due to reduction in the standard rate £2,728. The amount carried forward was £501,778 (£395,865).

Mozambique Railways.—In the description in our December 18 issue of all-steel passenger stock for the Mozambique Railways it was stated that the Beira system "carries a heavy traffic, as it forms part of the outlet from the Rhodesia and

Sir Brian Robertson's Visit to the Southern Region



Sir Brian Robertson, Chairman of the British Transport Commission, in Waterloo Signalbox; with him are (left to right) Mr. S. W. Smart, Superintendent of Operation, Southern Region, Mr. L. J. Boucher, Signal & Telecommunications Engineer, Wimbledon, and Mr. P. A. White, District Traffic Superintendent, Woking. (Right) At Cannon Street, accompanied by Mr. C. P. Hopkins, Chief Regional Manager

OFFICIAL NOTICES

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employer, is excepted from the provisions of the Notification of Vacancies Order, 1952.

TRAFFIC TRAINING OFFICER, RAILWAY DEPARTMENT.—Required for the GOLD COAST Local Civil Service for two tours each of 18-24 months in the first instance. Non-pensionable. Salary £1,700 a year. Gratuity at rate of £150 a year. Outfit allowance £30. Free passages. Liberal leave on full salary. Candidates must be M.Inst.T. or A.M.Inst.T. have had at least 10 years' railway experience including lecturing to railway personnel on railway or transport subjects and be able to coach candidates for Institute of Transport examinations. Write to the CROWN AGENTS, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M3B/34121/RA.

SUPERVISOR for erection of telecommunication and block signalling overhead pole route urgently required for duty overseas. Write Box 91, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

GUAYQUILA LA PAZ RAILWAY.—Assistant accountant. Qualifications: Man who has passed intermediate examination of recognised accountancy body preferred. Knowledge of railway accounts an advantage. Preferably single between 28/35 years of age. **CENTRAL RAILWAY.**—Traffic Learner for training as an official. Single. Between 21 and 25 years of age. Good general education with transportation experience either practical or theoretical. Knowledge of Spanish language preferable but not essential. Apply SECRETARY OF THE PERUVIAN CORPORATION, 144, Leadenhall Street, London, E.C.3.

GLOUCESTER RAILWAY CARRIAGE & WAGON CO. LTD., Gloucester, require experienced Draughtsmen. Five-day week. Staff pension scheme. Apply, stating age, details of experience and salary required, to CHIEF DESIGNER.

Nyasaland Railways to the coast." To obviate misunderstanding it is pointed out that traffic from Nyasaland is carried over lines of the Nyasaland Railways and Trans-Zambesia Railways, the latter having running powers over the Beira system from Dondo Junction to Beira, some 18 miles, and that the Nyasaland and Trans-Zambesia Railways provide their own stock for traffic to and from Beira.

British Railways Coal, Iron, and Steel Traffic.—British Railways carried 3,278,050 tons of deep-mine and opencast coal during the week ended 6 a.m. on January 25. The weekend figure was 397,020 tons. During the week ended January 16, 221,242 tons of iron and steel from the principal steel works and 314,200 tons of iron ore were conveyed.

Transportation Club Dinner.—A dinner will be held at the Transportation Club, 44, Wilton Crescent, London, W.1, on Thursday, February 18, at which Mr. Robert J. Bayer, Editor of *Traffic World*, Chicago and Washington, will be the principal guest. Mr. Bayer is paying a brief visit to London. The Chairman of the Club, Mr. K. W. C. Grand, will preside.

Mond Nickel Fellowships.—Applications are now invited for Fellowships of an approximate value of £900 to £1,200 for 1954. Fellowships will be awarded to selected candidates of British nationality with degree or equivalent qualifications to enable them to obtain wider experience and additional training in industrial establishments, at home or abroad, to make them more suitable for future employment in senior technical and administrative positions in British Metallurgical Industries. Each Fellowship will cover one full working year. Applicants will be required to state details of the programme they wish to carry out. Particulars and forms of

ASSISTANT TRAFFIC SUPERINTENDENT, RAILWAY DEPARTMENT.—Required for the GOLD COAST Local Civil Service for two tours each of 18-24 months in the first instance. Non-pensionable. Salary according to experience in scale £1,330 rising to £1,680 a year. Outfit allowance up to £60. Gratuity at rate of £150 a year. Free passages. Liberal leave on full salary. Candidates must have a thorough knowledge of electric train staff working, pilot working, double line block system, etc., centralised train control system, the working of shunting yards, train running and traffic statistics. They should also have experience of all sections of passenger and goods station working including accounts, rates and fares and claims. Write to the CROWN AGENTS, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M3B/33427/RA.

DUE to plant expansion important wagon builder desires Sales Engineer for Belgian Plant. Work to consist of estimating costs both material and labour, preparing detailed technical specifications, writing quotations, and general sales work both written and by personal contact. Spanish and French languages desirable. Technical training essential. Preference given to man willing to travel. Excellent future for man with right combinations of sales and technical abilities. Minimum age 25, maximum depending on experience but preferably not over 45. Excellent salary depending on qualifications. Reply Box 89, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

NORTH Midlands Rolling Stock Manufacturer requires a Senior Draughtsman with experience of the transmission and ancillary equipment associated with diesel railcars. The successful applicant will be in charge of the design of the installation of the power equipment on various types of railcars. A staff pension scheme is provided and good prospects are offered to a man with initiative and experience. Applicants to send full particulars of past experience to Box 81, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25% per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press Limited, 33, Tothill Street, London, S.W.1.

application are available from the Secretary, Mond Nickel Fellowships Committee, 4, Grosvenor Gardens, London, S.W.1. Completed application forms are required by June 1, 1954.

Higher Road Casualties in 1953.—The Ministry of Transport states that casualties on the roads of Great Britain in December reached a total of 20,972. This was 2,514, or nearly 14 per cent more than in December, 1952. Total road casualties for 1953 numbered 226,520, or nearly 9 per cent over the total for the previous year. The number of deaths was 5,070, an increase of 364. The December figures represent the largest percentage increase of any month in 1953 over the corresponding month of 1952, and the total is the highest December total for which the Ministry of Transport & Civil Aviation has records.

Disposal of Road Haulage Units.—To give prospective purchasers of road haulage units included in List No. 3 an extra weekend for inspection, the British Transport Commission, in consultation with the Road Haulage Disposal Board, has arranged that the last dates for the receipt of tenders on List No. 3 will be postponed from February 22 to 24 in the case of units without premises, and from March 8 to 10 in the case of units with premises. The catalogues are being over stamped accordingly; these can be obtained as before by application in writing to the Chief Secretary, British Transport Commission, 222, Marylebone Road, London, N.W.1.

Société des Ingénieurs Civils de France, British Section.—The 115th ordinary general meeting of the Société des Ingénieurs Civils de France, British Section, will be held jointly with the Institute of Welding in the lecture theatre of the Institution of Civil Engineers, Great George Street, S.W.1, on Wednesday, February 3, at 6 p.m. Light refreshments will be served

NOTICE is hereby given that Westinghouse Brake & Signal Company Limited and Another seek leave to amend the Complete Specification of Letters Patent No. 691,225 for an invention entitled Improvements relating to Fluid Pressure Braking Apparatus. Particulars of the proposed amendments were set forth in the Official Journal (Patents), No. 3389 dated January 27, 1954. Any person may give Notice of Opposition to the amendment by leaving Patents Form No. 36 at the Patent Office, 25, Southampton Buildings, London, W.C.2, on or before February 27, 1954.—J. L. BLAKE, Comptroller-General.

LONDON TRANSPORT require Executive Assistant, office of Assistant Civil Engineer (Permanent Way). Duties concerned with plant problems, liaison with plant manufacturers and users of permanent way plant. Experience of mechanical or electrical design, preferably of power tools, handling appliances and plant required. Qualifications: Higher National certificate, member or qualifying for membership of professional institution. Salary range £759 to £819, prospects of advancement to £894. Medical exam; contributory superannuation scheme after probation. Applications within 14 days to STAFF OFFICE (F/EV.268), London Transport, 55, Broadway, S.W.1. For acknowledgement enclose addressed envelope.

MANUFACTURER requires Agent to develop existing business with British Railways. Contacts with Permanent Way, Electrical and Building Department essential. Write Box 88, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

A.E.C. LTD. require Designers and Draughtsmen for development of Diesel Trains. Premises at Boreham Wood, Herts. Work is in connection with a new project on behalf of British Union Traction Co. Ltd. Automobile and railway experience would be an advantage. Permanent employment and pension scheme. Applications in writing to STAFF RECORDS OFFICE, A.E.C. Ltd., Windmill Lane, Southall, Middlesex, stating age, experience and salary required.

at 5.30 p.m. Dr. M. Lebrun, Past President of the Société des Ingénieurs Soudeurs, will present a paper entitled "Fifty Years of Welding in France." Mr. W. E. Blyard, President of the British Section of the Société des Ingénieurs Civils de France, will be in the Chair.

Institution of Locomotive Engineers: Annual Luncheon.—The annual luncheon of the Institution of Locomotive Engineers will be held on Friday, March 5, at the Dorchester Hotel, Park Lane, London, W.1, at 12 noon for 1 p.m.

S.G.E. Dramatic Society Performance.—On January 22 and 23, the Siemens & General Electric Railway Signal Co. Ltd., Diamond Players presented "Madam Tic-Tac," a drama in three acts, by Falkland L. Cary and Philip Weathers, at the Hirst Hall, Wembley. The production, under E. Graham Henderson, was of a high standard. The part of Madam Tic-Tac was well acted by Sylvia Bawtrie, supported by Anne Cassey and Ina Partridge who gave good performances in their respective parts, as did Jack Kirkaldie, E. Graham Henderson, and the rest of the cast. As is usual with the Diamond Players the décor was excellent.

Thames Haven: Additional Siding Accommodation.—Because of considerable expansion of the oil industry in the Thames Haven area in the past few years, siding accommodation at Thames Haven is proving inadequate for the volume of traffic and the private sidings are, with one exception, incapable of expansion. A scheme costing some £28,000 has been authorised by the British Transport Commission to overcome the difficulties so far as the sidings owned by British Railways are concerned. It includes provision of new and realignment of existing inwards sidings to give a total of five sidings with a total capacity of 223 wagons; provision

of new and realignment of existing outwards sidings to give a total of eight sidings with a total capacity of 245 wagons; construction of a new storage siding to hold 19 wagons; additional lighting; and erection of prefabricated concrete hut for the use of the Carriage & Wagon Engineer staff in lieu of existing accommodation displaced by the new sidings.

Forthcoming Meetings

January 30 (Sat.).—Permanent Way Institution, at the Headquarters of the British Transport Commission, 222, Marylebone Road, London, N.W.1, at 5.45 for 6.15 p.m. Conversation.

February 1 (Mon.).—Institute of Transport, East Anglia Group, at Thorpe Station, Norwich, at 5.30 p.m. Paper on "Railway Signalling," by Mr. J. Bonham-Carter.

February 2 (Tue.).—Institute of Transport, at the Connaught Rooms, Great Queen Street, London, W.C.2, at 12.30 for 1 p.m. Informal luncheon.

February 2 (Tue.).—Permanent Way Institution, Leeds & Bradford Section, at the British Railways Social & Recreational Club, Ellis Court, Leeds City North Station, at 7 p.m. Paper on "Train and traffic control," by Mr. S. Wilkinson, Instructor on Railway Courses at Huddersfield.

February 3 (Wed.).—British Railways, Western Region, London Lecture & Debating Society, at the London School of Economics & Political Science, Houghton Street, London, W.C.1, at 6.15 p.m. Debate with the Railway Students' Association on the motion "That this house considers that there are many features associated with the conduct of private enterprise which could with advantage be adopted by the nationalised railways."

February 3 (Wed.).—Railway Students' Association, at the London School of Economics & Political Science, Houghton Street, W.C.1, at 6.15 p.m. Debate as detailed above with the British Railways, Western Region, London Lecture & Debating Society.

February 3 (Wed.).—Institution of Mechanical Engineers, at Storey's Gate, St. James's Park, London, S.W.1, at 6.15 for 6.45 p.m. Internal combustion engine group discussion on "The extent to which the gas turbine may supplant or supplement the piston engine in the next 10 or 20 years."

February 3 (Wed.).—British Railways, Southern Region Lecture & Debating Society, at the Chapter House, St. Thomas' Street, London Bridge, S.E.1, at 5.45 for 6 p.m. Illustrated paper on "A journey through the Port of London," by Mr. E. Y. Malone, Port of London Authority.

February 4 (Thu.).—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, at 5.30 p.m. Five films.

February 4 (Thu.).—Institute of Transport, Merseyside Section, at the Chamber of Commerce, Liverpool, at 6.30 p.m. Paper on "Road haulage," by Maj.-General G. N. Russell.

February 5 (Fri.).—Railway Club, at 57, Fetter Lane, London, E.C.4, at 7 p.m. Annual general meeting.

February 5 (Fri.).—Institute of Transport, Western Section, at the Docks Office,

Bristol, at 1.15 p.m. Paper on "Transport in the Far East," by Mr. S. W. Nelson.

February 6 (Sat.).—Stephenson Locomotive Society, Sheffield District, at the Y.M.C.A., Fargate, Sheffield, at 6.30 p.m. Paper on "Some Midland Rebuilding," by Mr. J. E. Lockington.

February 8 (Mon.).—Institute of Transport, in the Jarvis Hall, R.I.B.A., 66, Portland Place, W.1, at 5.45 p.m. Brancker Memorial Lecture, "The impact of the gas turbine on civil aviation," by Sir Miles Thomas.

February 8 (Mon.).—Historical Model Railway Society, at the headquarters of the Stephenson Locomotive Society, 32, Russell Road, London, W.14, at 7 p.m. Talk entitled "My twenty-five years of railway modelling," by Mr. P. Garland.

February 9 (Tue.).—South Wales and Monmouthshire Railways & Docks Lecture & Debating Society, in the Angel

Hotel, Westgate Street, Cardiff, at 6.30 p.m. Paper on "Impressions of a visit to Australia," by Mr. H. H. Phillips, Chief Commercial Officer, British Transport Commission.

February 10 (Wed.).—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, Storey's Gate, St. James's Park, S.W.1, at 5.30 p.m. Paper on "The measurement of train resistance," by Mr. H. I. Andrews.

February 11 (Thu.).—British Railways, Western Region, London Lecture & Debating Society, in the Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, W.2, at 5.45 p.m. Paper on "Passenger Transport in London," by Mr. L. C. Hawkins, London Transport Executive.

February 12 (Fri.).—Institute of Welding, at the Holborn Restaurant, 218, High Holborn, W.C.2. Joint Dinner of London Branches.

Railway Stock Market

More cautious views have gained ground in stock markets, and movements in the industrial and most other sections recorded small movements against holders, though British Funds strengthened. The prevailing belief in the City is that the terms of the conversion operation in respect of 2½ per cent National War Bonds (1952-54) suggest that the authorities are assuming that the gilt-edged market is likely to show an upward trend. Apart from the higher wage demands and the other factors threatening industry with higher costs, sentiment has been affected by second thoughts on the optimistic forecasts of higher dividends recently current in the market. Many of these estimates seem based on the assumption that the Budget will bring tax reductions, particularly another cut in income tax.

On the other hand, the annual statements of the chairmen of the big banks have focused attention on difficulties ahead, and show that any important reduction in taxation must apparently await a major scaling down of Government expenditure. Nevertheless the City takes the view that the Chancellor of the Exchequer may very well come out with a tax reduction surprise to stimulate industry. The current hopes of higher dividends from a wide range of companies are based largely on this assumption.

Only a moderate amount of business has passed in foreign rails, and in the absence of demand, prices were easier.

Antofagasta ordinary stock receded further from 9½ to 8½, and the preference stock from 44 to 42½. Manila Railway "A" and "B" debentures have been maintained at 75 and 65 respectively, while the preference shares at 7s. 9d. and the 1s. ordinary at 4s. also held the same prices as a week ago, but were tested by few dealings.

United of Havana second income stock was fractionally higher at 42½, but the consolidated stock eased from 6½ to 6½. Patience is necessary, but the market view is that the payouts for both stocks are likely to compare very favourably with current prices.

Among Indian stocks, Barsi again changed hands around 125. In this case, market estimates are that the payout is likely to be well in excess of the current quotation. The stock is, therefore, firmly held and not easy to obtain in any amount.

After their recent outburst of strength, demand for White Pass fell away, and the no par value shares have eased from \$29 to \$28½ at the time of going to press, while the convertible debentures came back from £104 to £101.

Canadian Pacifics have been more active and strengthened from \$42 to \$42½, but the preference stock eased from £68½ to £68, though the 4 per cent debentures have gained half a point at £88½.

There was again a fair amount of business in Midland of Western Australia ordinary stock, which changed hands up to 23½, while the 4 per cent debentures showed dealings up to 47½.

San Paulo units were 5s. 6d. and Nitrate Rails shares 19s. 9d. Brazil Railway bonds showed business ranging from 6½ to 7. Taltal shares were quoted at 14s.

Dorada ordinary stock was inactive this week and at 62 with the 6 per cent debentures 90. Chilean Northern 5 per cent first debentures have been dealt in at 28½, Costa Rica ordinary at 9 and the 6½ per cent debentures at 47.

Among road transport and kindred shares, the best feature was activity up to 40s. 7½d. in B.E.T. 5s. "A" deferred units. West Riding were 27s., Southdown 29s. 3d. and Lancashire Transport 48s. 9d.

Engineering shares again recorded small irregular movements, though Vickers firmed up to 48s. 3d. Ruston & Hornsby rallied to 41s. 9d. on talk in the market of higher dividend prospects, but T. W. Ward at 82s. reflected a little selling. The disappointing response by the public to the Lancashire Steel issue was followed by discounts of 1s. 9d. and 3d. for the preference on the first day of dealings. With both United Steel and Lancashire Steel at a discount in the market, the view has gained ground that the next steel issue may very well be postponed until these shares go to a premium.

Among shares of locomotive builders and engineers, Vulcan Foundry have remained at 21s. 9d., Charles Roberts 5s. shares at 19s. were virtually maintained, but Gloucester Wagon moved up from 15s. 6d. to 16s. 3d. and Wagon Repairs from 15s. 1½d. to 15s. 7½d. Westinghouse Brake moved up further from 64s. 3d. to 65s. Beyer Peacock held their rise to 30s. Hurst Nelson were 41s. 9d. and North British Locomotive 14s. 3d.